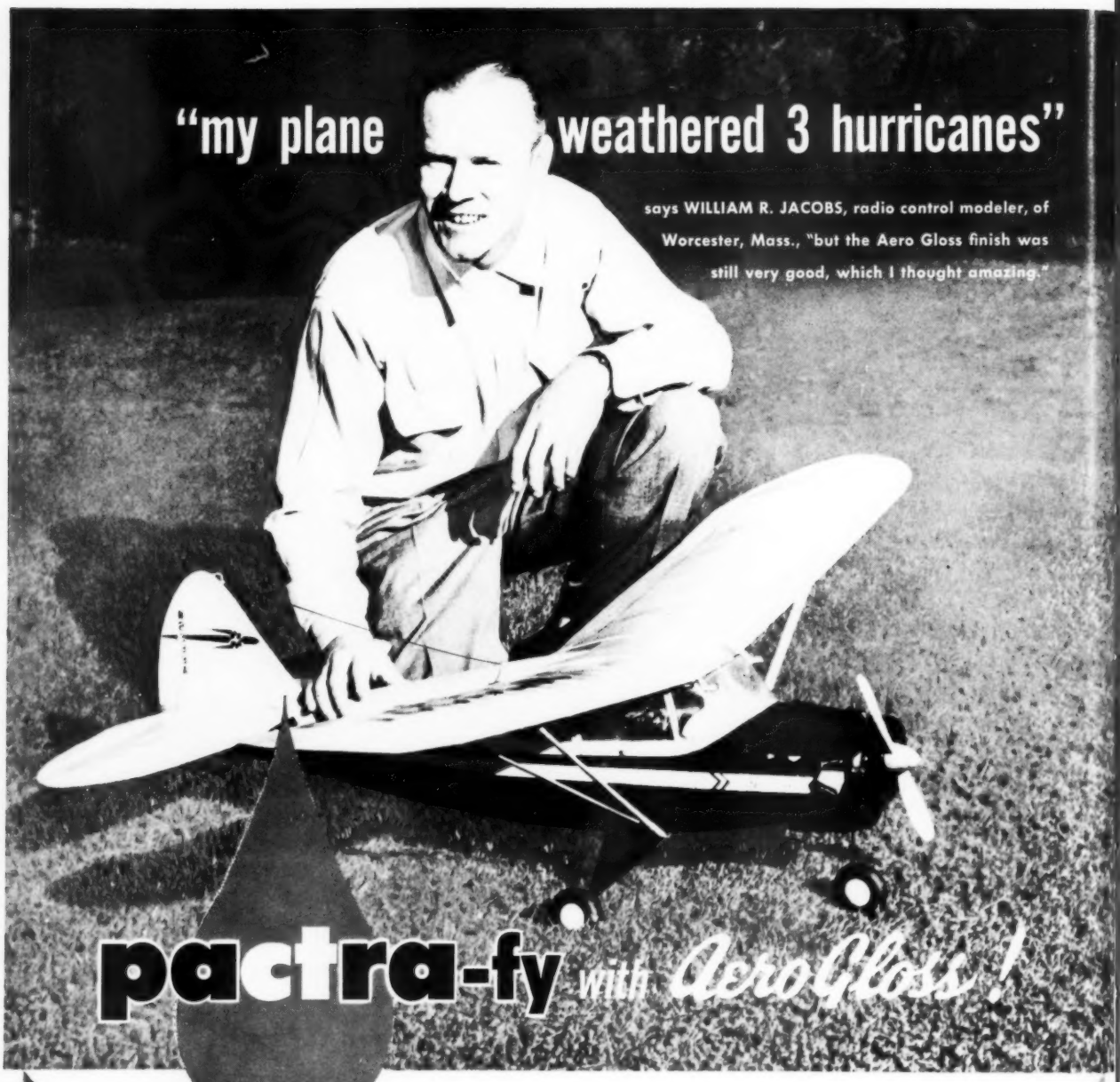
MODEL AIRPLANE NEWS

THE SCORPION
DANDY PROFILE TRAINER

•

PADDY'S WAGON
Contest Free Flight

OCTOBER 1955—35 CENTS


"my plane weathered 3 hurricanes"
says WILLIAM R. JACOBS, radio control modeler, of Worcester, Mass., "but the Aero Gloss finish was still very good, which I thought amazing."
pactra-fy with Aero Gloss!

NEW 6 oz. Can **98¢**

1 oz. Jar **20¢**

The finish on your plane may never have to undergo such a rigorous test as Bill Jacobs'... but the EXTRA protection provided by genuine Aero Gloss assures you of long-lasting PRIZE-WINNING beauty for any test or contest. And with the new Aero Gloss Spray you can now "pactra-fy" (protect *and* beautify) any model quicker *and* cheaper.

Also 12 oz. can now only $1.79. Both cans include Spray Valve. *And for the real beauty hound, Pactra offers Aero Gloss Rubbing Compound and Wax—a beauty of a buy at 40¢.*

pactra CHEMICAL COMPANY 1213 NO. HIGHLAND AVE., LOS ANGELES 38, CALIFORNIA

NOW... *from one of the greatest organizations in the model field . . .*

comes this

UNBEATABLE COMBINATION!

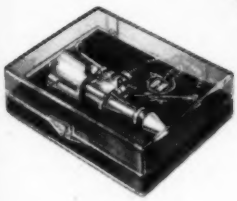
O&R .049 *Midjet*

LIST PRICE $6.95

sensational offer!

COSTS YOU ONLY $5.95

Your dealer will allow you $1.00 for your old engine, regardless of condition!



Designed by

HARRY RICE

. . . the designer who KNOWS engines . . . from the all-time champion—the O & R .23—to this power-new .049 Midjet with the new V.E. equation (*)!

The engine with Volumetric Efficiency!

OVERSIZE inside—UNDERSIZE outside

THIS .049 engine is a midget in *outside appearance* only.

On the inside there's the new unique "oversize" transfer and exhaust porting designed on a *completely new* turbulence principle. The large feather-valve intakes are also *uniquely oversized* for added power and efficiency.

Here's the engine that was DESIGNED FOR ½A *from the start* . . . the engine wth MORE POWER than any .049 on the market.

Here's the NEW deluxe engine that will give ½A modelers the flight of their lives across the country!

O&R AA FUEL

The Fuel with the Highest Octane Rating in the Model Field! Exactly the correct octane rating to combine with the O & R .049 Midjet and Kwik-Start Glow Plug and deliver maximum power. As with all O & R Fuels, super-octane O & R AA has special detergent added to keep engines clean and smooth running.

Pints **90¢**

½ Pints **50¢**

O&R KWIK-START GLOW PLUG

NOT just a "short thread Class A plug that fits ½A"... but the FIRST glow plug *originally* designed for ½A operation EXCLUSIVELY. Insulated with a *heatproof, fuel proof* molded insulation that CANNOT LEAK . . . "Tortured" under severest conditions in exclusive "exhaustion tests."

KS-5 GLOW PLUG
3/32 THREAD
65¢

O&R

PRODUCTS DIVISION

Chemical Corporation 9307 E. BERMUDEZ ST., RIVERA, CALIF.—410 N. CASS ST., MIDDLETOWN, DEL.—IN CANADA, CANADIAN HOBBYCRAFT, TORONTO

ANY OF THESE

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ANSCO HOME DEVELOPING OUTFIT
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VOIT SKIN DIVING OUTFIT
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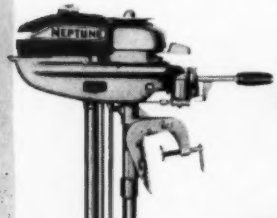

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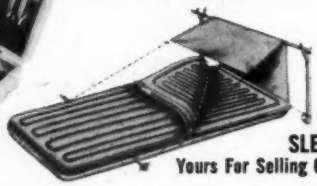

ARKTIK
SLEEPING BAG
Yours For Selling Only 20 Boxes

It Costs You Nothing To Get These Awards!

Any or all of these valuable prizes can be yours, WITHOUT COST, when you become a member of the Junior Sales Club of America. Here's all you have to do: First, pick out the prize you'd like to work for. Then fill out the coupon carefully, indicating whether you want 12 or 20 boxes. (If you want a prize that requires more than 20 boxes, check the 20 box). Be sure to check either the 12 or 20 box and PLEASE PRINT YOUR NAME AND ADDRESS CAREFULLY.

YOU SEND NO MONEY! We will send you our fast-selling Christmas Cards on credit because WE TRUST YOU. They're really beautiful Christmas Cards too. Most of our members sell all their cards the very first day. NO EXPERIENCE IS NECESSARY – THESE CARDS ACTUALLY SELL THEMSELVES AT ONLY $1.25 PER BOX. As soon as you finish selling the required number of boxes and send us the money you have collected, we will send you the award of your choice. These awards are all top quality nationally advertised products and WE GUARANTEE YOUR SATISFACTION. Start NOW! Mail the coupon without delay and we shall immediately send you complete details and the cards you need to get the award of your choice.

JUNIOR SALES CLUB OF AMERICA, INC.— Dept. MA-10 Springfield 1, Mass.

MAIL COUPON TODAY AND BECOME A MEMBER!

PRIZES CAN BE YOURS!

HERCULES LIGHTWEIGHT BICYCLE
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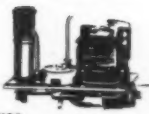
COMET SABRE READY-TO-FLY GAS MODEL PLANE
Yours For Selling Only 12 Boxes



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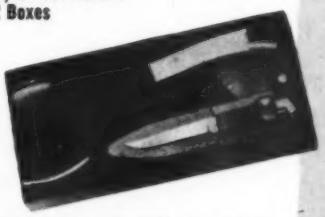

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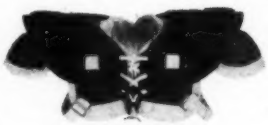

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SPALDING OFFICIAL FOOTBALL
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MARLIN REPEATING RIFLE
Yours For Selling Only 40 Boxes

DELTA GENERATOR SET FOR ALL BICYCLES
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SPALDING FOOTBALL HELMET
Yours For Selling Only 12 Boxes

WEAVER 6 POWER SCOPE WITH MOUNT
Yours For Selling Only 20 Boxes

CHEMCRAFT SENIOR LABORATORY
Yours For Selling Only 20 Boxes

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SEND NO MONEY • Mail Coupon TODAY!

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SPRINGFIELD 1, Mass.

Please enroll me as a member of the J.S.C.A. and send me AT ONCE, complete details on how to get prizes, illustrated folder and a supply of Christmas Cards as checked below:

☐ **12 BOXES** ☐ **20 BOXES**

PLEASE PRINT CAREFULLY

NAME_____

ADDRESS_____

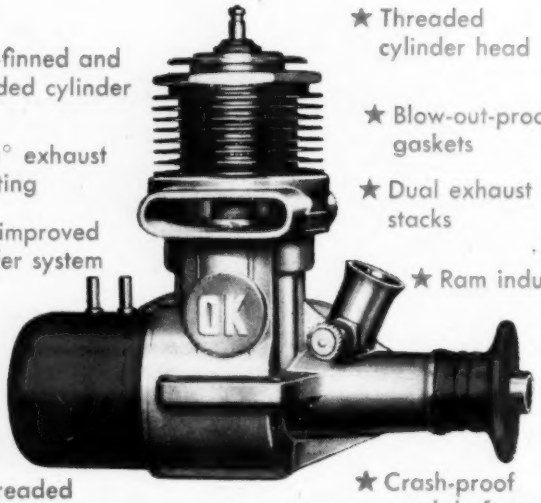
CITY_____ ZONE____ STATE____

TWO NEW WINNERS!

Announcing

OK CUB .29 and OK CUB .35

Two new powerful Cubs, interchangeable on the same plane because their mounting dimensions are the same. Streamlined for greater power and speed—every engine assembly screw has been eliminated. Chock full of advanced features like these . . .



★ Deep-finned and threaded cylinder

★ Threaded cylinder head

★ 360° exhaust porting

★ Blow-out-proof gaskets

★ New, improved transfer system

★ Dual exhaust stacks

★ Ram induction

★ Oversized fuel tank

★ Threaded back cover

★ Crash-proof crankshaft assembly

★ Rugged mounting lugs

★ Reversible needle valve

"OK" CUB .29 $11.95

"OK" CUB .35 $12.95

And don't forget . . .

"OK" GLOW FUEL

Methanol base, heavily fortified with nitrates. Assures quick firing, complete combustion—leaves no varnish or residue.

85¢ Pint

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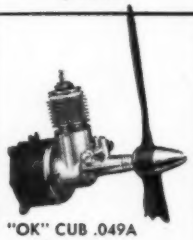
For PRICE, POWER, and PERFORMANCE

10TH ANNIVERSARY OK 1937 • 1955

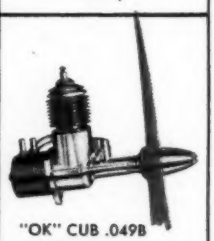
A Complete Line of PROVED Miniature Engines and Accessories

"OK" CUB .049B POWER KIT **$4.45**

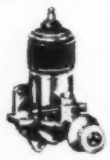
"OK" GLOW PLUGS Short or Long **59¢**



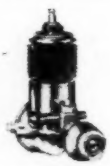
"OK" CUB .049A **$4.95**



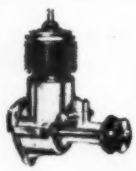
"OK" CUB .049B **$4.95**



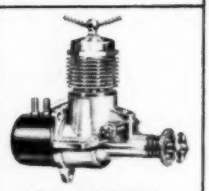
"OK" CUB .074 **$5.95**



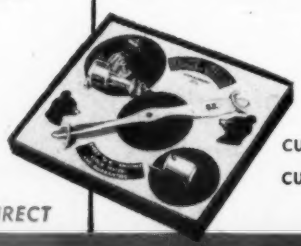
"OK" CUB .099 **$6.95**



"OK" CUB .14 **$7.95**
"OK" CUB .19 **$8.95**



"OK" CUB DIESEL .049 **$5.95** .075 **$7.50**



"OK" COMBINATION PACKAGES

CUB .074 ..... **$6.75**

CUB .099 ..... **$7.75**

HERKIMER TOOL & MODEL WORKS

88 HARTER STREET HERKIMER, N. Y.

27th Year of Publication

MODEL AIRPLANE NEWS

JAY P. CLEVELAND, President and Publisher

OCTOBER 1955 Vol. LIII—No. 4

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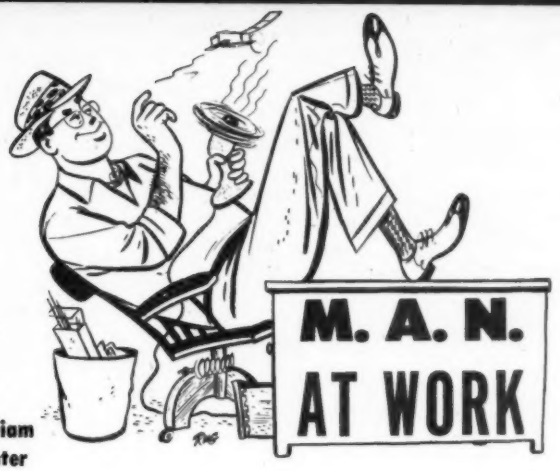

by William Winter

Nothing is perfect. Not MAN, its illustrious contemporaries (gentlemen!), or the industry. Imperfections encourage candid discussion of matters that affect the hobby and its often proclaimed contributions to character, skills, industry and even national defense. MAN at Work has made the point that plastics and ready-to-fly models are fine, as is (or was?) prefabrication, but that overemphasis of models as toys has left a void in do-it-yourself stuff.

If this trend continues, it could be that modeling, as we know it, and all the things it stood for, would go down the drain. We have faith this will not happen.

"My son, aged eight, has shown a desire to build and fly model airplanes," says Ed W. James, Rockford, Ill., in a typical letter. "Hoping to encourage this interest, I have been shopping for kits which would teach the principles of free flight as well as entertain him. During my search for such kits, I have been amazed to find that this type of model is no longer available. The dealers tell me that today's youth is interested in models that require little, if any, work."

When we put this comment to one of the biggest manufacturers in the business, he made these remarkable but perhaps hopeful remarks. "No question about it, today's youngsters are downright lazy. The television age we live in is destroying initiative, desire for achievement and, if it continues, so too will the personal skills of our younger generation.

"While I am a firm believer in time being the great equalizer," the kit manufacturer continued, "I sincerely believe that when we get our fill of today's pace of living, we will go back (actually forward) to a more progressive and informative way of doing things."

We wonder. Who puts the emphasis on the "no work required" aspects? The dealer? The manufacturer? Has anyone bothered to stress the educational and other beneficial aspects? If printed on the box, this might even sell more kits—but do change what is in the box at the same time. Who interprets public demand? Could it be the jobber? The jobber has cornered life and death over new items. If he isn't concerned with stocking the things you guys can't find, son, you just are not going to find them. Does a kid really refuse to "build" an airplane? Or is it that he never sees anything from which an "airplane" can be built?

Do we lack faith? They tell you that no one will (*Continued on page 38*)

NEXT MONTH'S COVER
Bristol Fighter

PLANE ON THE COVER

A 500 hp Pratt & Whitney Wasp pulled Boeing's F4B-4. Although basic design widely used by all services, Jo Kotula's cover painting is based upon a Marine fighter. Span was 30 ft., armament consisted of two .30 caliber guns, or one .30 and one .50. Two 116 lb. bombs could be carried. 170 mph top.

AHC ... the HOBBYIST'S SUPERMARKET of SUPER SAVINGS!

NOWHERE IN THE WORLD will you find as large a selection of AIRPLANES • ENGINES • SPEEDBOATS RACE CARS • ACCESSORIES • ETC. CHECK THIS LIST!

NEW ITEMS ... if available anywhere WE'VE GOT EM!

LOOK! Only AHC Gives You All These Terrific EXTRAS

1. One year subscriptions to Model Airplane News, Air Trails and Flying Models or their equivalent value to our regular customers.
2. 14-Day Money Back guarantee on unused purchases.
3. BONUS ITEMS with every engine purchased! ITEMS INCLUDE: Correct Size Propeller, Glo Engine Handbook, etc., etc.
4. BONUS with gas planes (selling at over $1.50) . . . Control Lines, Construction Manual, Rubber Wheels, Insignias, etc.
5. No postage or packing charges for orders of over $2.00 (include 25c if order is under $2.00). We insure safe delivery ANYWHERE IN THE WORLD. Outside of U.S.A. (except APO & FPO) add 10% for postage (minimum 50c).
6. Membership in "Modelcrafters of America," the club that keeps you up to date on gas modeling and SAVES YOU MONEY On YOUR PURCHASES. Over 100,000 members!
7. No "minimum" orders. Any order is welcome.
8. 24-hour service. Mail addresses coast-to-coast airmail your orders to our N. Y. office for immediate shipment to you.
9. Most complete model stock in America—gas, rubber, sailds, etc. If it's advertised, we can usually supply it.
10. Competent understanding of your modeling problems.
11. 64 page giant 2-color illustrated catalog FREE with every order.

SATISFACTION GUARANTEED OR YOUR MONEY BACK

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GLO ENGINES

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Atwood FF .049 or .051 ea. 5.75
Atwood Sic .049 or .051 ea. 6.95
Atwood Triumph .49 (C) 18.00
Cameron Ring or Lapped .19 9.95
Cameron .19 two speed (A) 11.95
Elf Twin .198 21.50
Elf Four .396 49.50
Fox 19 (A) 12.50; 2 Speed 13.50
Fox 29 (B) 14.95; 2 Speed 15.95
Fox 35 (C) 16.95; 2 Speed 17.95
Fox 59 (D) 22.50; 2 Speed 24.00
T & R Glo Torp .19 (B) 14.95
K & B Glo Torp 35 (C) 16.95
K & B Torpedo 19 (A) 13.95
K & B .19 (2-speed) (A) 13.95
K & B 19 (2-speed) (A) 16.95
K & B Torpedo 23 (A) 16.95
K & B Torpedo 15 (A) 10.95
McCoy .049 (AA) 4.95
McCoy 19 (A) 9.95
McCoy 19 Super Stunt (A) 9.95
McCoy 19 R.H. (A) 12.95
McCoy 20 Super Stunt (B) 11.95
McCoy 29 R.H. (B) 16.95
McCoy (C) 14.95
McCoy 60 R.H. (C) 24.95
McCoy 61 Midget (D) 14.95
O & R 22 Rc Deluxe (B) 11.95
O & R .29 or .33 Glo ea. 13.95
O & R .60 Glo (C) 16.95
O.K. Cub .099 (A) 6.98
O.K. Cub .099 Plus (A) 8.98
O.K. Cub .049A Plus (AA) 4.98

Buried in This Ad

are most of the new items. Sometimes there isn't time or space to list all of them. But, if available anywhere . . . we have it.

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O.K. Cub .049 Plus (AA) 4.95
O.K. Cub .074 (AA) 5.98
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Thimble Drome (FF) (AA) 6.95
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Dart .03 (AA) 12.95
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McCoy .049 (AA) 7.95
McCoy .09 (A) 7.95
O. K. Cub .075 (A) 7.80
O. K. Cub .09 (A) 8.95
Spitfire .06 12.95

All foreign makes—Webra. Efrin, etc. In stock

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(Prop Coil, Condenser, Etc. Included)

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Elf Twin .396 49.50
O & R 23 RV Deluxe (B) 12.95
O & R .29 Rotary or .33 (B) 14.95
O & R .60 Luna (D) 16.95
Wasp Twin (D) 29.50

MARINE ENGINES

Allyn Mar-Fury .049 (AA) 5.95

SAVE with AHC's famous ENGINE TRADE IN SERVICE

We meet all competition! If anyone advertises a higher trade-in allowance in this issue, clip the ad and send it to our N.Y. office with your order. BONUS ITEMS INCLUDED AT NO EXTRA CHARGE. Your old engine is worth 25% of the amount of your purchase. Only 1 engine accepted per order.

Atwood Inbd. Air Cooled (AA) 5.50
Atwood Inbd. Wt. Cool. (AA) 6.95
Atwood Obrd. Air Cool. (AA) 9.95
Atwood Obrd. Wt. Cool. (A) 9.95
Cameron .09 Marine (A) 9.95
Cameron .09 Marine Obrdst (A) 11.95
Cameron .19 Water Cooled (A) 14.95
O & R .29 Marine (B) 14.95
See Fury Outboard .049 (AA) 6.95
See Fury Inboard .049 (AA) 9.95

We carry all the Allyn Fury engines

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Jetex 50 2.95
Jetex 50D Contact Ssi. 2.95
Jetex 150 4.95
Jetex Scorpion 600 8.95
Mow 601 1.10
Pref 80 1.00

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AMC Pee Wee 1.25; Super 1.50
Pittman 6.50 & 8.50
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Make and fly BOTH these 18" profile models

PLUS F-86 SABRE · PLUS F-51 MUSTANG · PLUS SPACE BUG JR. .049 · PLUS ACCESSORIES AND BONUS EXTRAS

BIG $10 OUTFIT FOR ONLY $5.99 with O.K. Cub .049 - $6.39

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Monarch's famous "SPITTIN' IMAGE" 20" wingspan control-line models. Extra deluxe kits PERFECTLY and COMPLETELY PREFABRICATED. Beautiful models you will be proud to fly. A cinch to build and fly!

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Chris-Craft
RIVIERA RUNABOUT

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PLUS .049 Engine

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"HALF-PINT" Race Car complete with all accessories (except fuel and battery). Prefab kit assembles in 5 minutes. Car speeds over 40 M.P.H. on any smooth surface.

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High Grade
PROPELLERS

Testor's. Reg. 35c to 50c each. 8" in 10, 12p; 9" in 10, 12p; 10" in 10p; 11" in 10p. AHC — 8/8; 6/3; and 5½/4.

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READY-TO-RUN SPEEDBOAT

It's all wood . . . painted, too. Complete with Hi-Speed imported motor that runs on 1½-3 volt flashlight batteries. All chrome and brass fittings.

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FREE 6 matching O&R 45c props FREE of extra cost w/ engine.

O & R GLO PLUGS
For ½A Eng. Closeout 29c ea. Reg. 65c ea. 4 for $1.00

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6 asstd. plastic plane models. All different & including 2 paint colors, cement, brush, stand, etc. 1.79

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U.S. made. 1" x 1⅛" x 1⅛" high. REG. $1.98 Imported Motors, 1½ to 3 Volt — SPECIAL 1.25 · 98c

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WAS 3.00
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Six separate and individual screwdrivers, all 6-in. 2-3-4-5. Colored heads for easy identification. 1.49

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$3.00 VALUE
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DECAL BARGAIN

Just look what you get: ¾" AMA decals, 62 black decals (2 complete sets of numbers plus alphabet and extra letters), 1 set of 4 star & bar 2", 6 picture decals 2" x 4", 3 sheets of solid colors, 1 sheet checkerboard decals, 6 strips of solid color, plus Tips and Hints on use of decals. A REAL BARGAIN . . . WORTH MANY $$$$.

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5 asstd. solid ¼" scale model planes. All balsa. Reg. 29c ea. 79c

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For ⅛A Reg. 30c 19c

49c
Reg. $1.00
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Aluminum Cowl, 5" x 3" with 3¼" opng. Reg. 1.50 49

GRAB-BAG 5 asstd. plastic antique cars, all different; paints, cement, brush, etc. . . . 1.49

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"Jersey Javelin," Free Flight 40" Cl. B. Reg. 3.95 . . . 1.95

"Roamer" (F.F.), .15 - .29 eng., 45" span. Reg. $2.95 . . . 1.95

"Stratos" (F.F.), .09 - .19 eng., 42" span. Reg. $2.95 . . . 1.95

SAVE
Souvenir Engines
99c
3 for $2.75

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SPECIAL BUY

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here are the WINNERS!

1955 NATIONALS
Los Alamitos, Cal.

Again, for the fourth time, Top Flites and Power Props won *more* events in the Nationals *than all the other makes combined*. Fly with a sure winner!

A pair of Top Flite winners from Yuba City, Calif. GARY GRENOBLE (left) beat the best in ½A F.F. JR with his Shorty. Swung a 6-3 POWER PROP on his Atwood .049 with Ohlsson Gold Seal go-juice. Time, 16:34. DAVID ARNE bagged first in A F.F. JR with an Ohlsson Gold Seal 2000 bang-watered Cub .09. His Jasco Rival clocked 14:00 behind a 7-4 TOP FLITE to make him Junior National Champ!

½ A SPEED JUNIOR
Michael Obryan
Detroit, Mich.
Speed 73.95mph
Engine Thermal Hopper
Fuel Home Brew
PROP 4½-7 POWER PROP
Plane Original

A GAS F.F. OPEN
John D. Nagy
Denver, Colo.
Time 18:00
Engine Atwood .051
Fuel K&B 1000
PROP 6-3 POWER PROP
Plane Jasco Streak

C GAS F.F. JUNIOR
Jack Linn
Los Angeles, Calif.
Time 16:36.0
Engine Torp 32
Fuel Ohlsson 200
PROP 10-6 POWER PROP
Plane Modified Zeek

PAA-LOAD OPEN
L. T. Everett
Long Beach, Calif.
Time 14:25.2
Engine Thermal Hopper
Fuel Thimble Drome Racing
PROP 6-3 POWER PROP
Plane Payee

INT'L PAA LOAD JR-SR
Robert Patchin
Hawthorne, Calif.
Time 11:42.3
Engine Torp 15
Fuel Thimble Drome Racing
PROP 8-3½ TOP FLITE
Plane PAA-Sir

STUNT OPEN
Bob Palmer
Burbank, Calif
362 points
Engine Veco 35
Fuel Exothermic 28
PROP 10-6 TOP FLITE
Plane Thunderbird

FLYING SCALE SENIOR
Jim McCroskey
Iredell, Texas
294 points
Torp 29 engine
Fuel Fox
PROP 9-5 TOP FLITE
Plane F-51

B GAS F.F. JUNIOR
Bob Johnson
Riverside, Calif.
Time 14:07.8
Engine Fox 29
Fuel K&B 1000
PROP 10-6 TOP FLITE
Plane Modified Spacer

PAA-LOAD ENDURANCE
Richard Heist
Fort Worth, Texas
Time 1 hr. 8 min. 14.6 sec.
Engine Torp 15
Fuel Powermist
PROP 8-6 POWER PROP
Plane So-Long-Gone

½ A SPEED SENIOR
Mike Dawson
Galesburg, Ill.
Speed 79.29 mph
Engine Thermal Hopper
Fuel Thimble Drome Racing
PROP 4½-6 POWER PROP
Plane modified Whirlaway

FLYING SCALE-OPEN
Thomas Dean
Corpus Christi, Texas
344 points
Engine Cameron 19
Fuel K&B 1000
PROP 9-6 TOP FLITE
Plane Aeronca Crop Duster

B GAS F.F. SENIOR
Bob Gelvin
Topeka, Kansas
Time 16:56
Engine Torp 23
Fuel K&B 1000
PROP 10-3½ TOP FLITE
Plane Spacer

FLYING SCALE F.F. JR-SR
Robert Gelvin
Topeka, Kansas
85 points
Engine Wasp .049
Fuel K&B 1000
PROP 6-3 POWER PROP
Plane Longster "Wimpy"

COMBAT JUNIOR
Michael Burks
Louisville, Ky.
520 points
Engine K&B 35
Fuel Exothermic 28
PROP 10-6 POWER PROP
Plane mod Trixter Profile

NAVY CARRIER SENIOR
Clyde Hamilton
Bellflower, Calif.
377.47 points
Engine Torp 35
Fuel K&B 1000
PROP 9-6 POWER PROP
Plane Grumman Guardian

C GAS F.F. SENIOR
Don Geisler
Monterey Pk., Calif.
Time 27:26.0
Engine Torp 32
Fuel K&B 1000
PROP 10-6 TOP FLITE
Plane Civy Bdy 61

FLYING SCALE F.F. OPEN
Bob Hill
Capistrano Beach, Calif.
213 points
Engine Atwood .049
Fuel K&B 1000
PROP 6-3 TOP FLITE
Plane Berkeley Sup. Cruiser

COMBAT SENIOR
Jim Leverett
Glendale, Calif.
560 points
Engine Fox 35
Fuel V&O
PROP 9-8 POWER PROP
Plane Original

NAVY CARRIER OPEN
R. M. Post
Fresno, Calif.
391.93 points
Engine McCoy 29
Fuel Powermist
PROP 9-7 TOP FLITE
Plane Grumman Guardian

R.O.W. GAS JUNIOR
Jack Moreland
Long Beach, Calif.
Time 12:31
Engine Space Bug .049
Fuel Thimble Drome Racing
PROP 6-3 POWER PROP
Plane Orig. by J. Osley

RADIO CONTROL (rudder)
Edward L. Friend
Las Cruces, N. M.
76⅓ points
Engine Fox 25
Fuel Olhsson 200
PROP 11-4 TOP FLITE
Plane Live Wire Crusier

COMBAT OPEN
Donald R. Smith
San Bernardino, Calif.
540 points
Engine Fox 35
Fuel K&B 1000
PROP 10-6 POWER PROP
Plane ½ Fast

½ A GAS F.F. SENIOR
Don Alberts
Albuquerque, N. M.
Time 36:00
Engine Atwood .049
Fuel Thimble Drome Racing
PROP 5¼-4 POWER PROP
Plane Privy Boy

R.O.W. GAS SENIOR
Jack Thomas
Garden Grove, Calif.
Time 12:58
Engine Torp 15
Fuel Home Brew
PROP 10-6 TOP FLITE
Plane Modified Spacer

RADIO CONTROL (multi)
Alex Schneider
San Francisco, Calif.
156⅔ points
Engine Spitfire 60
Fuel Gas & Oil
PROP 14-6 TOP FLITE
Plane Modified Piper Cub

FLYING SCALE JUNIOR
Gary A. Cummings
Fort Worth, Texas
183 points
Engine 2 Torp 32's
Fuel Cheminol #2
PROP 10-6 TOP FLITE
Plane B-26

NEW RECORD ½A SPEED
Jerry McClung
Abilene, Texas
Speed 79.24 mph
Engine Thermal Hopper
Fuel Thimple Drome Racing
PROP 4½-6 POWER PROP
Plane Mini-Whirlaway

HELICOPTER
Parnell Schoenky
Kirkwood, Mo.
213.79 points
Eng. Atw'd .049 & Jetex 350
Fuel Cheminol AA
PROP 6-3 POWER PROP
Plane XH-4 and JH-5

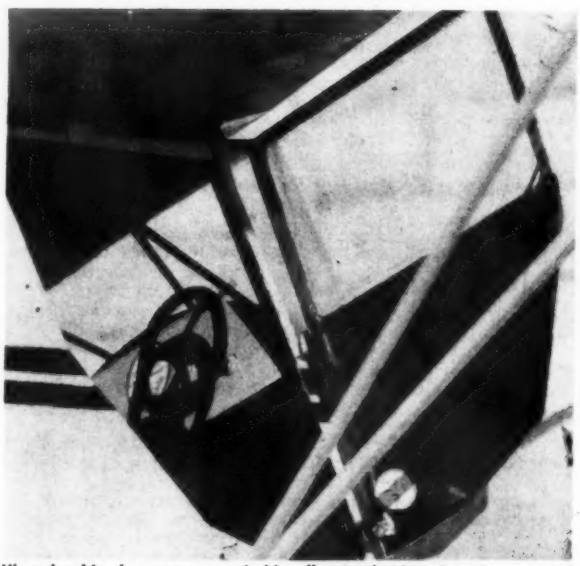
TOP FLITE

PICK WINNING PROPS

Be like these Nats winners and get winning TOP FLITES and POWER PROPS from these famous cabinets at your dealer. It's easy to get the right prop for LONGER, FASTER, BETTER flights, use TOP FLITE'S free Prop Chart!

TOP FLITE MODELS, INC. • 1565 SOUTH WABASH AVE. • CHICAGO 16, ILLINOIS

Emphasis on flying ability did not compromise appearance, so contest fans can expect to pile up points on both scale and flight performance.



Hinged cabin doors as on real ship allow such gingerbread as control wheels and instruments. Scale bugs usually look over the real job.

"C.O." releases his Taylorcraft at the 1954 Nationals. Long, fast take-off run, nice realistic circle to the left. Is good in a wind, too.

the T-craft

Flying scale models should be bigger, states this builder. The performance of his Taylorcraft on Half-A to .075 engines certainly backs him up.

by C. O. WRIGHT

▶ When flying scale was limited to .05 engines, the models of small private ships were commonly scaled 1 in. to the foot. Results were generally not too successful with small spans and heavily loaded wings on Cubs, Cessnas and similar ships. The inch scale jobs proved tricky at best and difficult to adjust and fly. Nose-overs, stalls, loops and spins were common. This prompted the building of the Taylorcraft described on a scale of 1½ in. to the foot.

The early Taylorcraft of 1941 was selected because of its balanced design and simplicity. Span is 36 ft. which, at 1½ in., figures 54 in. Scale elevator span would be 15 in., but was enlarged 4 in. for stability. Accordingly, the 1° dihedral of the ship was increased to measure 3 in. at the top surface of the wing tips. The experimentally minded might build a smaller elevator, approaching scale, and monkey with the dihedral, pulling it down an inch or so. This would raise the scale points if it could be done. However, a bird with plumage or a bird for flight is the choice forced on the scale builder. I take the flight.

Flying results of the 1½ in. to a foot T-Craft exceeded expectations. With an .049 Atwood, weight of 14 oz. and 54 in. wing, it flew off the board and required only some wing incidence. It has inherent stability and realistic flight characteristics. Entered in the Nationals at Chicago in 1954, it placed fifth. At Dallas that year at the Labor Day meet, it placed first. At the Texas meet, the T-Craft rose ROG from a rather rough dirt runaway in a 25 to 30 mile gusty wind. Take-off is straight and leisurely with climb and circle to the left. With larger power permissible now in scale, the ship may be tried with an .07 motor. This would permit larger prop, approaching scale, and cut the blanking-out (*Continued on page 10*)

WING SECURED TO MODEL BY RUBBER, STRETCHED BETWEEN 1/16" DIA. WIRE HOOKS SEWN TO WING & PLY. FLOORING.
SEE DETAIL BELOW
ENTIRE MODEL TISSUE COVERED
GREEN LIGHT
.049 WASP SHOWN
BALSA BLOCK COWL
CELLULOID WINDSHIELD
MODEL PAINTED YELLOW WITH BLACK TRIM.
CENTER SECTION PLANKED WITH 1/16" SHEET, TOP & BOTTOM
EXHAUST OPENINGS
1/8" SHEET
F1
F2
1/16" PLY.
FLOOR
SILK
STRUT HINGE
1/16" BALSA
1/16" DIA. LANDING GEAR STRUTS
2-3/8" DIA. WHEELS
1/4"SQ. L.E.
MAIN SPAR 1/4"x1/2"
REAR SPAR 1/8"x3/8"
WING TIPS 1/8" BALSA
RED LIGHT
TRAILING EDGE 1/4"x3/4"
1/32" WIRE HOOK HOLD STRUTS TO WINGS WITH RUBBER
REMOVABLE STAB
NC 23710
STAB. MOUNT 1/16" PLY.
1/32" WIRE TAIL SKID
1/16"x1/8" STRINGERS TOP, BOTTOM & SIDES
FUSELAGE BUILT-UP OF 1/8"SQ. BALSA & HARDWOOD
BLACK NUMERALS NC 23710 SECURED TO BOTTOM R.H. & TOP L.H. WINGS NOT SHOWN.
E. G. THOMAS

Rubber bands hold on wing. Later, made more accessible, indicated on the plan and cutaway.

effect of the large nose.

Special Arrangement on Tail

New, as far as I know, on scale jobs, is the arrangement for the removable elevator and rudder. These are alined in simple slots and notches which make incident adjustments possible on the elevator. An inconspicuous 1 in. rubber band is all that is needed to hold the two units on the fuselage. The slots and notches must be in perfect alinement but this is not too difficult with use of 1/16 plywood mount as indicated, and careful, unhurried work. The elevator is placed *below* the mount.

The larger the ship, the more convenient it is to disassemble the units for transportation. However, the chief reason for the detachable elevator and rudder is to permit their storage on a "press board" to prevent warping. This board may preferably be made by cementing ½ x 2 balsa stock to form a board. Outlines of ⅛ balsa square are cemented to fence the units on the board—the elevator on one side, the rudder on the other—and strong corrugated paper boards (from a grocery box) are hinged for covers. Rubber bands bind the "sandwich" together for safe storage and transportation. This idea for the tail arrangement may well be copied for other scale jobs.

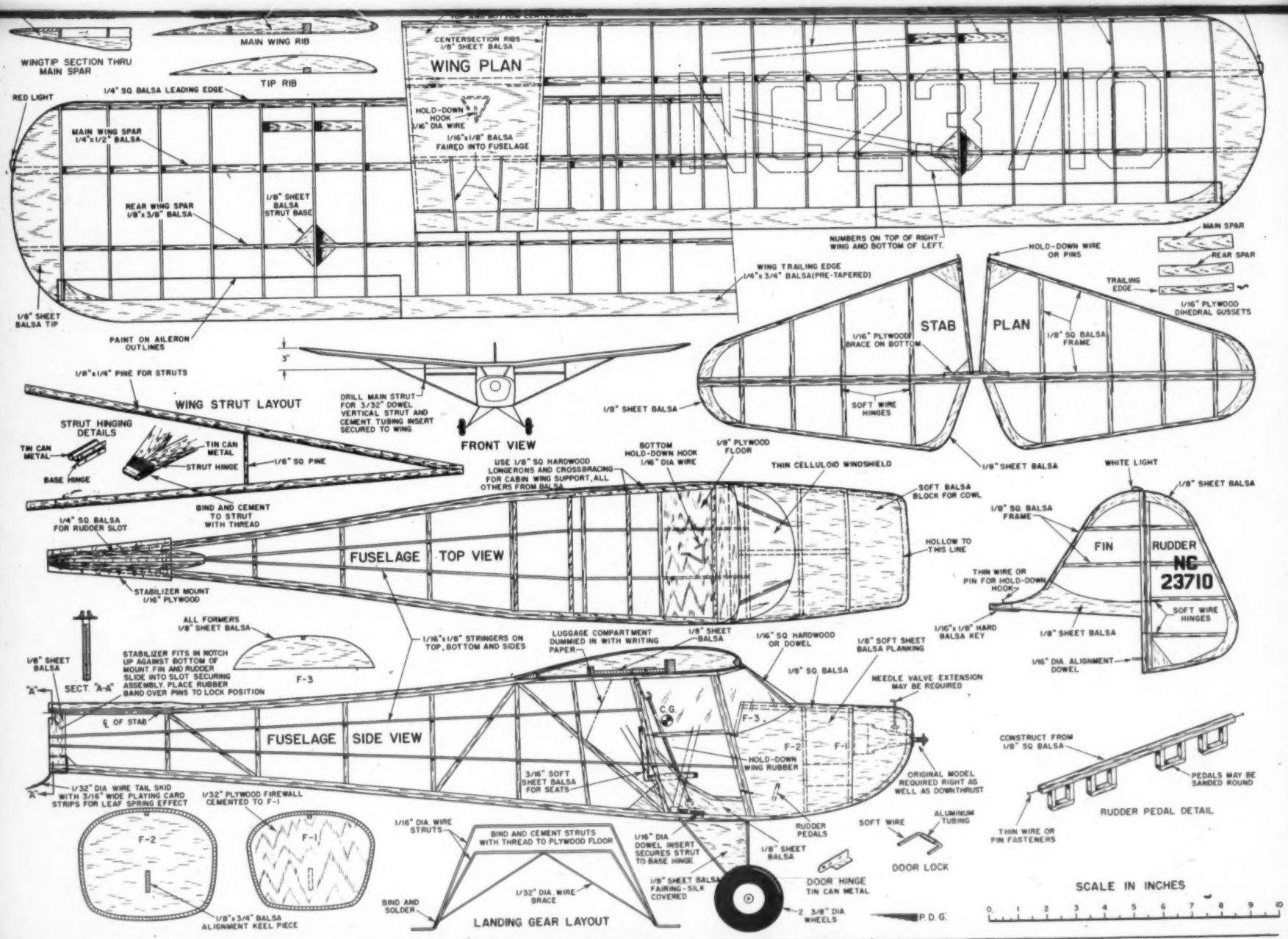
It will be noted also that the wing has an unconventional attachment. The 1/16 steel wire hooks as shown permit connecting with rubber bands through the one door on the ship. The hook at the bottom is anchored to the cabin plywood floor which also carries the landing gear. The hooks must be securely installed and cemented in place. One-eighth sheet balsa triangular blocks cemented under the center of the wing aline the unit at the cabin corners, all out of sight. The one door on the right must be placed to permit full opening and closing with the wing in position.

Use Light Balsa

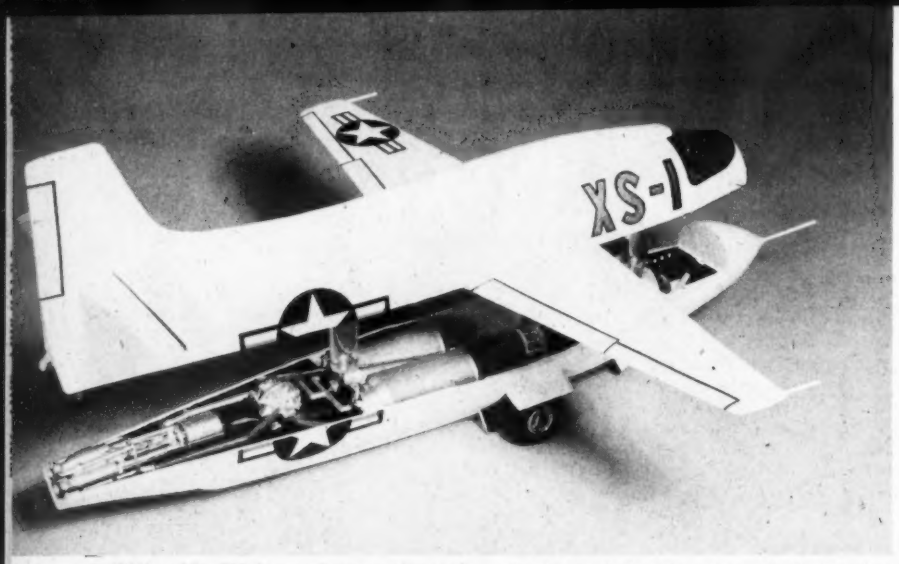
Soft balsa should be used in most ribs and sheeting. Soft, thick sheeting is preferable to the thin, hard kind and it will sand more easily to form. Spars, leading and trailing edges should be medium to soft. Use hard ⅛ square on longerons and hard stock on the ⅛ to 1/16 stringers. Cabin main framework that supports the wing may be ⅛ square bass or white pine, as may the spar on the elevator. Make the ship light, using very soft balsa where stress is easy. The 14 oz. weight of the original may be cut an ounce or two with judicious selection of soft wood.

Construction is conventional. Build the fuse sides one on top of the other, lining the longerons with small blocks held to the board with pins. The fuse is formed with rectangular cross-section. Exact lengths of cross-pieces are shown. Nose of ship must be constructed "in the air." Temporary stringers can be extended

(*Continued on Page 46*)


WINGTIP SECTION THRU MAIN SPAR
MAIN WING RIB
TIP RIB
WING PLAN
CENTERSECTION RIBS 1/8" SHEET BALSA
1/4" SQ. BALSA LEADING EDGE
RED LIGHT
MAIN WING SPAR 1/4"x1/2" BALSA
REAR WING SPAR 1/8"x3/8" BALSA
1/8" SHEET BALSA STRUT BASE
HOLD-DOWN HOOK 1/16" DIA. WIRE
1/16"x1/8" BALSA FAIRED INTO FUSELAGE
1/8" SHEET BALSA TIP
PAINT ON AILERON OUTLINES
NUMBERS ON TOP OF RIGHT WING AND BOTTOM OF LEFT.
WING TRAILING EDGE 1/4"x3/4" BALSA(PRE-TAPERED)
NC 23710
MAIN SPAR
REAR SPAR
TRAILING EDGE
1/16" PLYWOOD DIHEDRAL GUSSETS
HOLD-DOWN WIRE OR PINS
STAB PLAN
1/16" PLYWOOD BRACE ON BOTTOM
1/8" SQ. BALSA FRAME
SOFT WIRE HINGES
1/8" SHEET BALSA
1/8"x1/4" PINE FOR STRUTS
WING STRUT LAYOUT
STRUT HINGING DETAILS
TIN CAN METAL
BASE HINGE
STRUT HINGE
1/8" SQ. PINE
BIND AND CEMENT TO STRUT WITH THREAD
3"
DRILL MAIN STRUT FOR 3/32" DOWEL VERTICAL STRUT AND CEMENT TUBING INSERT SECURED TO WING
FRONT VIEW
USE 1/8" SQ. HARDWOOD LONGERONS AND CROSSBRACING FOR CABIN WING SUPPORT, ALL OTHERS FROM BALSA
BOTTOM HOLD-DOWN HOOK 1/16" DIA. WIRE
1/8" PLYWOOD FLOOR
THIN CELLULOID WINDSHIELD
SOFT BALSA BLOCK FOR COWL
HOLLOW TO THIS LINE
1/4" SQ. BALSA FOR RUDDER SLOT
FUSELAGE TOP VIEW
STABILIZER MOUNT 1/16" PLYWOOD
WHITE LIGHT
1/8" SHEET BALSA
1/8" SQ. BALSA FRAME
FIN
RUDDER
NC 23710
THIN WIRE OR PIN FOR HOLD-DOWN HOOK
SOFT WIRE HINGES
1/16"x1/8" HARD BALSA KEY
1/8" SHEET BALSA
1/16" DIA. ALIGNMENT DOWEL
ALL FORMERS 1/8" SHEET BALSA
1/16"x1/8" STRINGERS ON TOP, BOTTOM AND SIDES
LUGGAGE COMPARTMENT DUMMIED IN WITH WRITING PAPER
1/8" SHEET BALSA
1/16" SQ. HARDWOOD OR DOWEL
1/8" SOFT SHEET BALSA PLANKING
1/8" SHEET BALSA
STABILIZER FITS IN NOTCH UP AGAINST BOTTOM OF MOUNT FIN AND RUDDER SLIDE INTO SLOT SECURING ASSEMBLY. PLACE RUBBER BAND OVER PINS TO LOCK POSITION
SECT. "A-A"
F-3
NEEDLE VALVE EXTENSION MAY BE REQUIRED
C.G.
℄ OF STAB
FUSELAGE SIDE VIEW
F-3
F-2
F-1
HOLD-DOWN WING RUBBER
3/16" SOFT SHEET BALSA FOR SEATS
ORIGINAL MODEL REQUIRED RIGHT AS WELL AS DOWNTHRUST
1/32" DIA. WIRE TAIL SKID WITH 3/16" WIDE PLAYING CARD STRIPS FOR LEAF SPRING EFFECT
1/32" PLYWOOD FIREWALL CEMENTED TO F-1
F-2
F-1
1/8"x3/4" BALSA ALIGNMENT KEEL PIECE
CONSTRUCT FROM 1/8" SQ. BALSA
PEDALS MAY BE SANDED ROUND
RUDDER PEDAL DETAIL
THIN WIRE OR PIN FASTENERS
1/16" DIA. WIRE STRUTS
BIND AND CEMENT STRUTS WITH THREAD TO PLYWOOD FLOOR
1/16" DIA. DOWEL INSERT SECURES STRUT TO BASE HINGE
1/8" SHEET BALSA
RUDDER PEDALS
SOFT WIRE
ALUMINUM TUBING
DOOR LOCK
1/8" SHEET BALSA FAIRING - SILK COVERED
1/32" DIA. WIRE BRACE
BIND AND SOLDER
LANDING GEAR LAYOUT
DOOR HINGE TIN CAN METAL
2 3/8" DIA. WHEELS
P.D.G.
SCALE IN INCHES
0 1 2 3 4 5 6 7 8 9 10

FULL SIZE PLANS AVAILABLE. SEE PAGE 50.



A MAN article, 300 hours of construction and nine bucks went into this remarkable Bell XS-1, by Carl G. Holzwarth, who works for Reaction Motors, makers of its engine. Model not flier.

AIR WAYS

Variety is the spice of life when MAN readers try out dream crates. Do you have pictures?

Henry Struck gets a little wet as he turns loose his Sea Cat RC. Fine on land or sea.

Cameron .19 powers 18-in. VTO, L. E. Kemp, London. Develops 2 lb. of static thrust. Good.

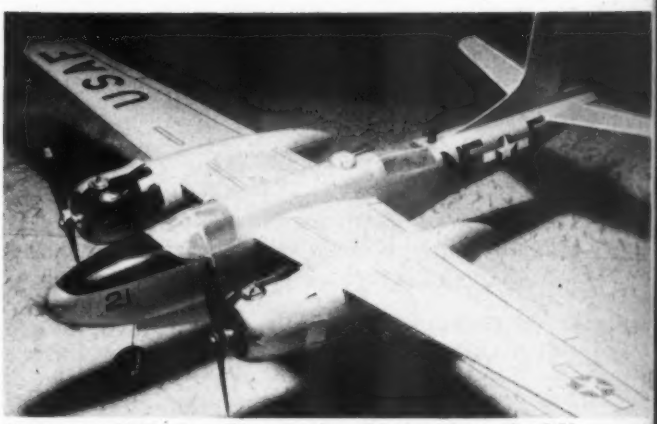
Ced Galloway's Boeing F4B-4 U-control was one of the all-time great trophy winners.

Tigercat, Gerald Ellison, planked, silked, four coats rubbed Dulux. Excruciating detail. Flies well.

Airman Bobby Moore of Carswell Air Force Base with his B-36 scale job powered by six Space Bugs. Easy starting is a must here! A chore.

Neat Panther jet by Jack Ottle. Has a 40-in. span, 22 coats of dope (ye gods), Dynajet motor. Seven pounds, takes .021 lines. Flies okay.

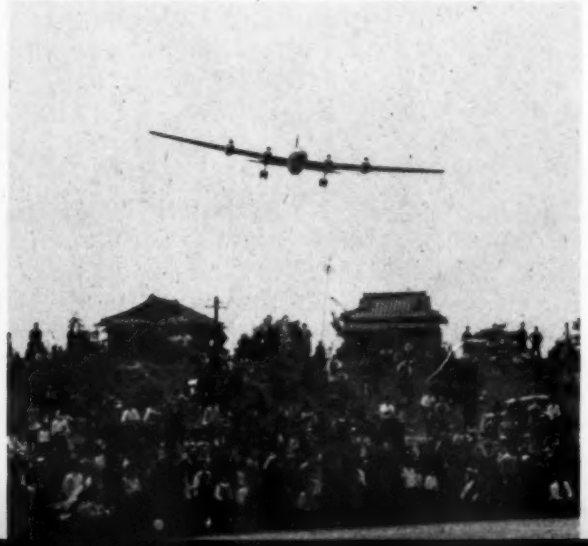
Every flight a record with this Sassy Saucer, George Harris, Rio de Janeiro. Plane has Japanese OS .29 engine and does neat 100 mph.



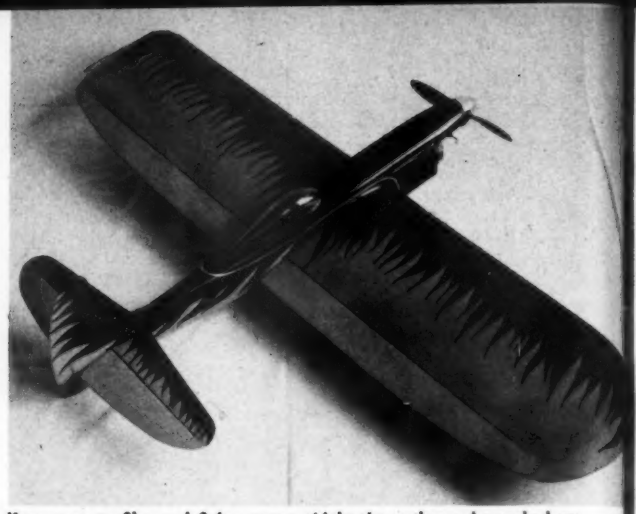
Sixteen-year-old Ho Fang-Chiun, Sweden, did top job on the B-26 Invader which he powered by two British Javelins, 1.49 cc Diesels.

Below—Fang-Chiun did equally neat job on French Bebe Jodel, from MAN plan. Webra Record .09, 7 x 6 prop, does 60 on 34 ft. lines.

Eureka B-29 impressed crowd in Tokyo. Seven-foot wing, four Enya .19's Owned by K. Kokubo, made and flown by its designer K. Seki.



With the larger wing and inverted engine, slowed-down Feno proved ideal for the special flying conditions the designer had to contend with.



Keep your profiles and flying wings, thinks the author, who racked up remarkable record of 18 first places without loss. Even won 180 lap race.

feno

By TED GOYET

Remarkable maneuverability, plus an ability to stay out on the lines regardless of the wind conditions, makes this stunt ship worth building.

The Feno was basically designed for combat and did very well as such. It won the 1952 Combat and Special Events Championship. The ship won 18 first places without a loss in combat, 180 lap races and balloon bursting. This was with Western Associated Modelers in California.

The Feno has remarkable ability to stay tight on the end of the lines under almost any conditions. It has flown combat in winds from 25 to 30 mph without showing signs of coming in or going slack on the lines.

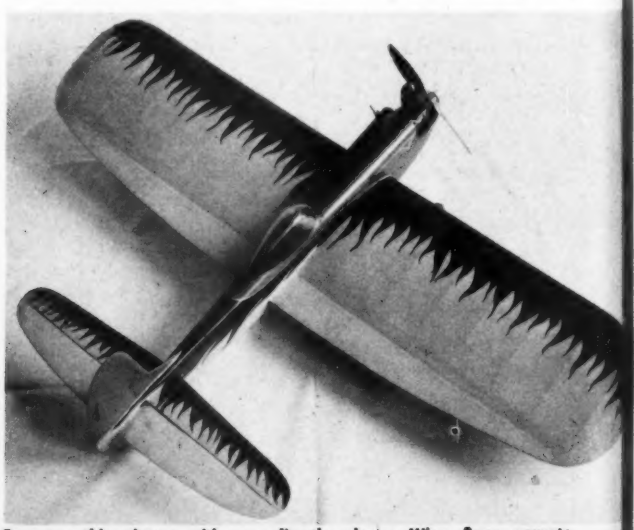
After I had recovered from a polio attack to the point of resuming flying, I tried to take up the old Feno from a wheel chair, but since it was too fast for both myself and the fellow who guided my chair, I pushed it around in a circle. (Just try it some time!) Obviously, the old Feno was unsuitable for such activity and I designed several other ships with large wing areas, thinking this would slow them down to allow me to handle them. But this didn't work out very well either, as the large wing area has floating tendency on dead stick, or wants to go slack on a bad engine run. Not being able to back up in a wheel chair created another disadvantage.

Then it occurred to me to build a Feno with a longer wing to slow it down, and a longer nose moment arm to smooth out the maneuvers. I also inverted the engine so I could cowl it (although this never got done). This turned out to be a good idea, as the ship turned out to be very stable in the wind and not too fast for my chair-man and me.

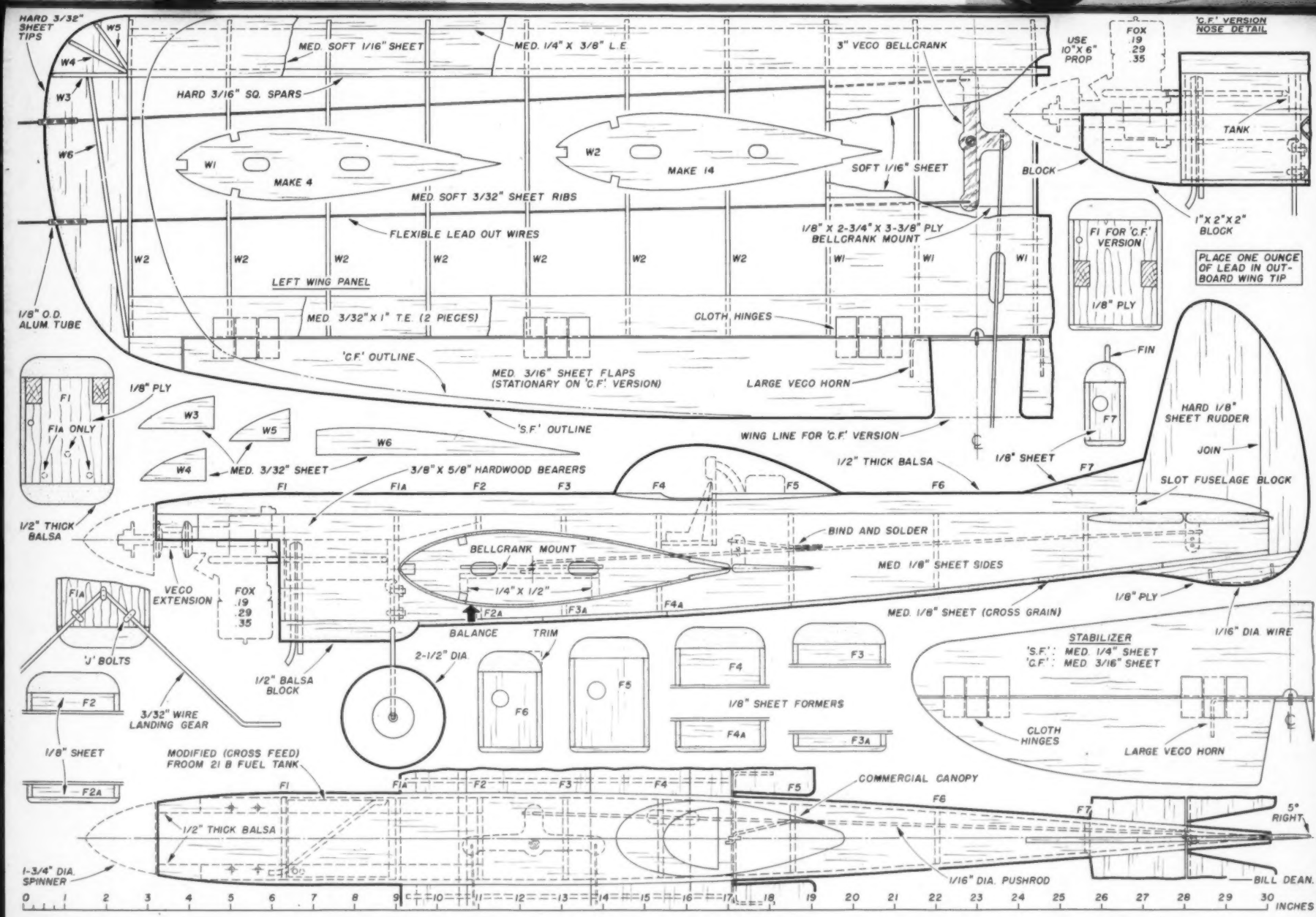
At the very first contest to which I took Feno SF, it won first place in AB expert, and since then has taken two seconds.

The construction is as simple as that of most kit designs of this general type. Because of the size of the model, only one wing panel has been drawn, so after you get your full size plan from MAN, trace to obtain the right hand panel. On the plans the basic design is featured (referred to as SF for Stunt Feno) with details of the (*Continued on page 52*)

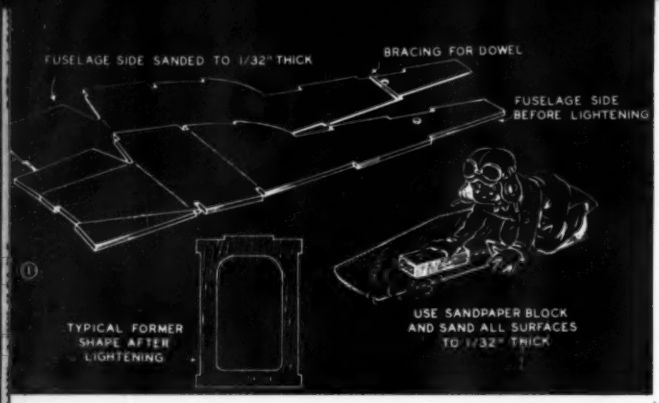
Shot of shorter wing version, shorter nose and upright engine. To suit everyone, plans show outlines low-winged, clipped-wing version.



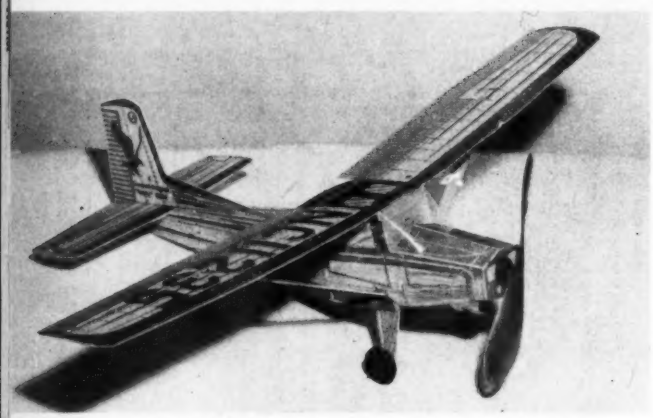
Compare this picture with one directly above. Wing flaps operate on the plane at top but in ship just above, flap structure is rigid.



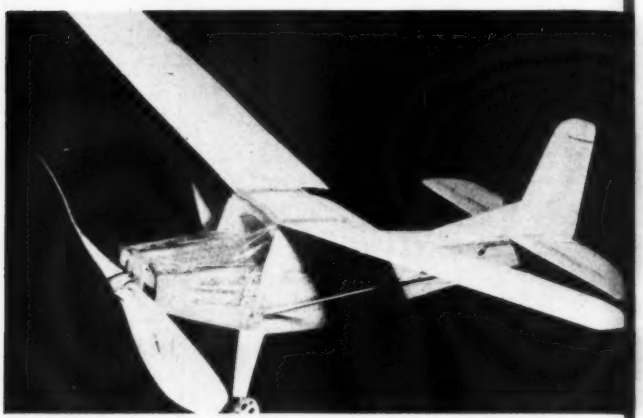
FULL SIZE PLANS AVAILABLE. SEE PAGE 50.


FUSELAGE SIDE SANDED TO 1/32" THICK
BRACING FOR DOWEL
FUSELAGE SIDE BEFORE LIGHTENING
TYPICAL FORMER SHAPE AFTER LIGHTENING
USE SANDPAPER BLOCK AND SAND ALL SURFACES TO 1/32" THICK

Soup Up that PRE-FAB!



***Before*—Standard Cleveland Model & Supply Co. Luscombe, built as it came from box, weighed 2 ounces and was able to fly for 15 seconds.**



***After*—Hot rod version, lightened and souped-up, weighs two-tenths of ounce and easily breaks minute. This particular ship holds 1:56 record.**

Four hundred fliers compete in Cleveland's Annual Indoor Air Meet, but the highlight is the pre-fab event. This year the boys started to crowd two minutes!

By CHUCK TRACY & JIM POWELL

Flying souped-up pre-fab kit models in duration contests has become a favorite indoor sport in Cleveland. It's a new way to tax the skill of model builders. And what they've done with simple 59¢, ready-cut kit models is mildly terrific.

For four years running Cleveland's annual Indoor Air Meet in the 90-ft. high Public Auditorium has grown to be the nation's biggest for indoor models. It attracts 400 fliers, each with three or four planes. At first pre-fabs were on the program just to give the kids a chance to fly in a big meet with the easiest kind of a rubber job. The main purpose was to get more youngsters interested in contest flying.

Special age groups for pre-Juniors are another big feature of the successful indoor series, starting with Dodoes 9 and younger, then Bantams, 10 and 11 and Fledglings, 12 and 13.

After watching the kids with their pre-fabs regular Juniors, Seniors and Opens said, "We'd like to try that. Give us a pre-fab event too." So Indoor Air Meet sponsors—Cleveland Coca-Cola Bottling Co., The Cleveland Press, Cleveland's City Recreation Division and Northern Ohio Hobby Stores Assn.—increased the prize budget and added pre-fabs for all six age divisions.

Over-all champ of pre-fab flying is Cleveland's indoor ace, Jim Bowers, 19, whose Luscombe Sedan, a Cleveland "Quicky" kit model, floated through the hall for 1 minute, 51 seconds—and with no thermals.

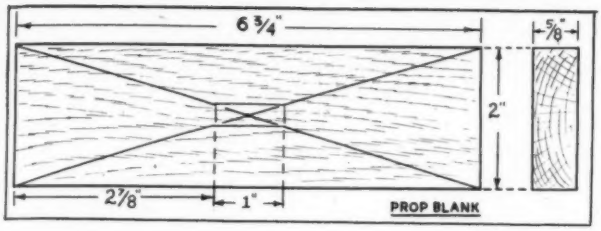
Two brands of pre-fab meet contest rules. "Jigtimes" made by Top Flite Models, Inc., Chicago, and "Quicky's" produced by Cleveland Model Products, Inc., Cleveland. Each line has a half-dozen different models but fliers have found high-wing cabin jobs the best. These are the Luscombe Sedan, Luscombe Silvaire, Stinson Sentinel, Piper Cub, Aeronca Chief, Taylorcraft and Rascal. The swept-wing Aerojet also does well for young fliers.

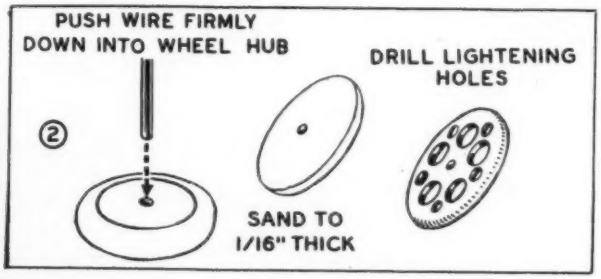
How do you soup them up for long endurance flights? Well, here's Jim Bowers' check list:

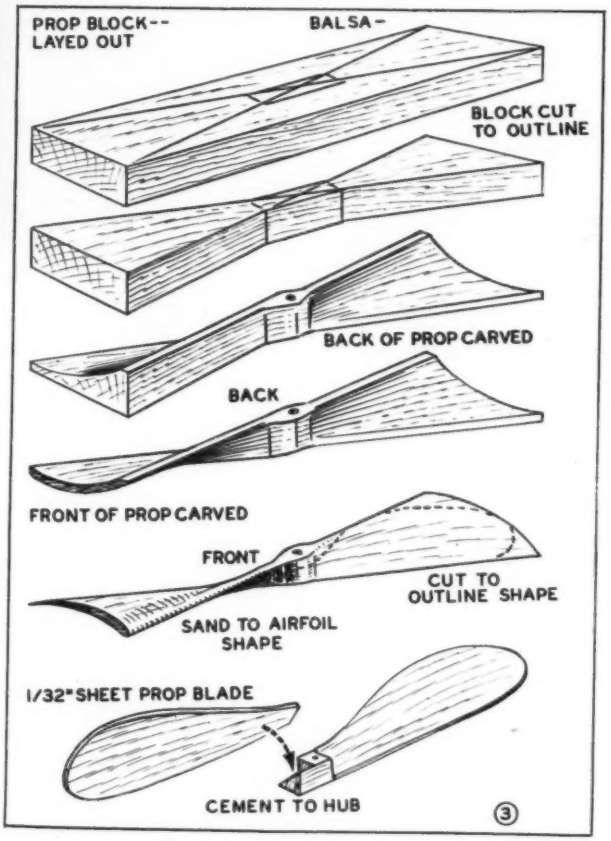
1. *Lighten Entire Plane:* Bowers blew away more than half his plane in balsa dust by sanding all the 1/16 in. sheet wood parts down to 1/32 in. or less at trailing edges. Since one rule is: "Some of the printed decoration scheme must be retained to prove that only kit materials were used," Bowers kept within it by doing most of the sanding on the inside of the fuselage parts before assembly. He sanded wings and tails mostly on undersides with just enough over the printed surfaces to get them smooth. Fuselage formers were trimmeed away to a 1/4 in. band all around.

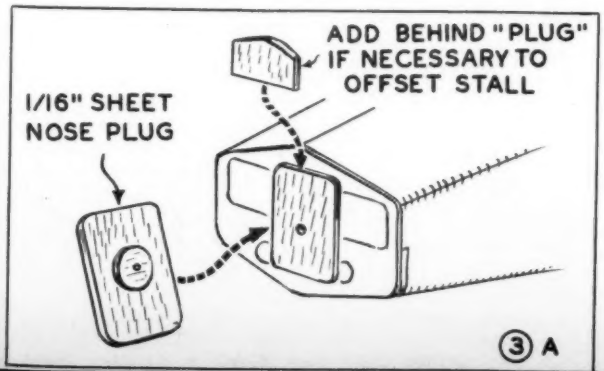
2. *Cut Down and Drill Wheels:* There's a trick to getting the hardwood wheels light. First he thinned them down to 1/16 in. thickness by grinding away both sides, holding them on the end of a piece of wire. This also may be done with a wood rasp or coarse sandpaper. Then he drilled them full of holes.

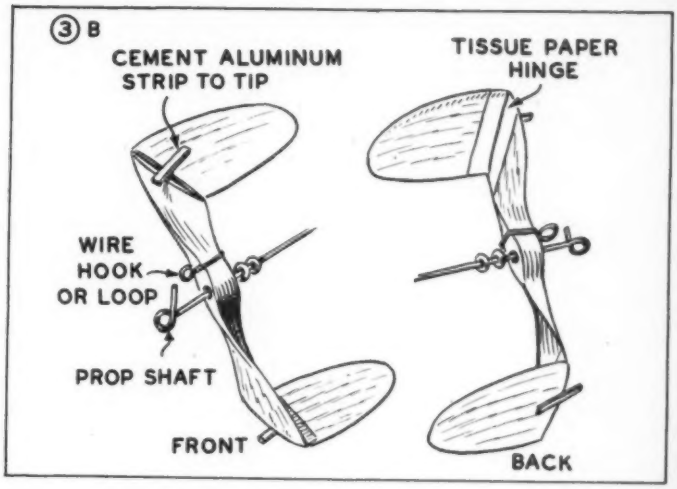
3. *Make New Balsa Propeller:* He replaced the plastic propeller with one carved from a balsa block 5/8 x 2 x 6-3/4 in. Draw diagonals from corner to corner, saw out, then carve. Or you can use a machine cut prop of similar size. Another way is to make blades of 1/32 in. sheet wood and cement them to a hub. Then to keep it from snapping on landing, since it was longer than the landing gear (models do not have to ROG), he cut the blades off diagonally in the middle of each, putting them back in place with a tissue paper hinge on the back surface. A 1/2 in. strip of aluminum 1/16 in. wide and 1/64 in. thick was cemented (*Continued on page 50*)

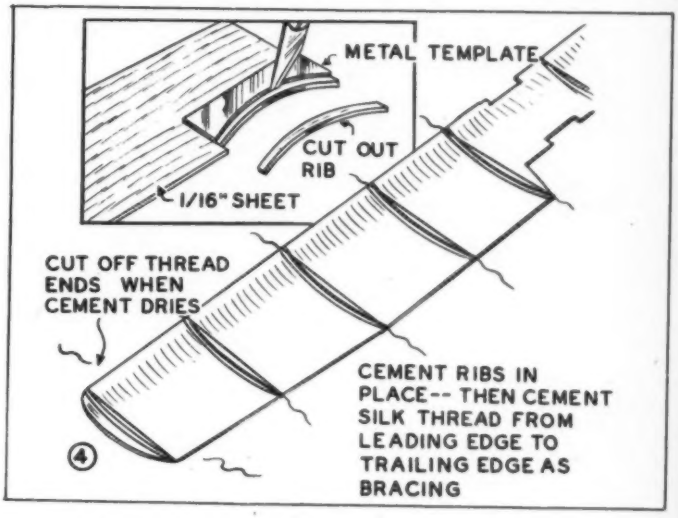

6 3/4"
5/8"
2"
2 7/8"
1"
PROP BLANK

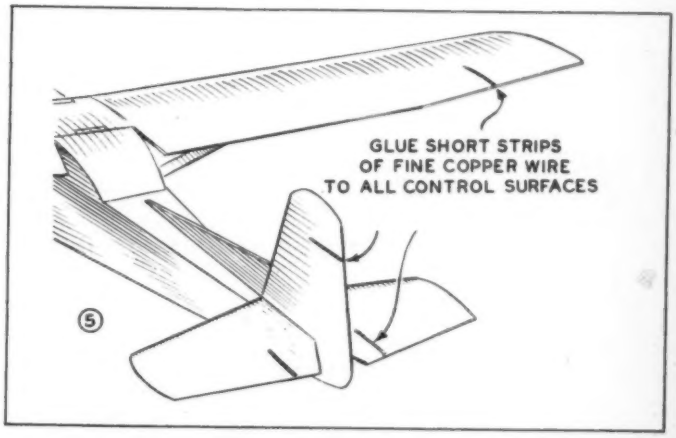

PUSH WIRE FIRMLY DOWN INTO WHEEL HUB
DRILL LIGHTENING HOLES
2
SAND TO 1/16" THICK

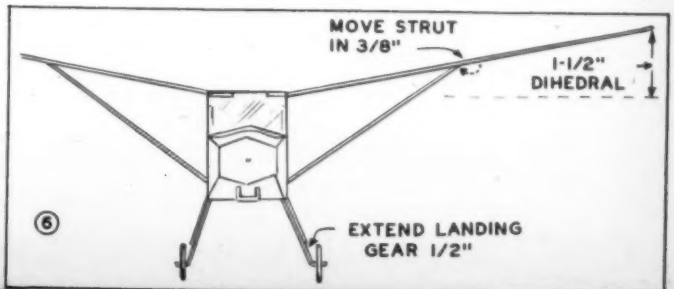

PROP BLOCK-- LAYED OUT
BALSA
BLOCK CUT TO OUTLINE
BACK OF PROP CARVED
BACK
FRONT OF PROP CARVED
FRONT
CUT TO OUTLINE SHAPE
SAND TO AIRFOIL SHAPE
1/32" SHEET PROP BLADE
CEMENT TO HUB
3

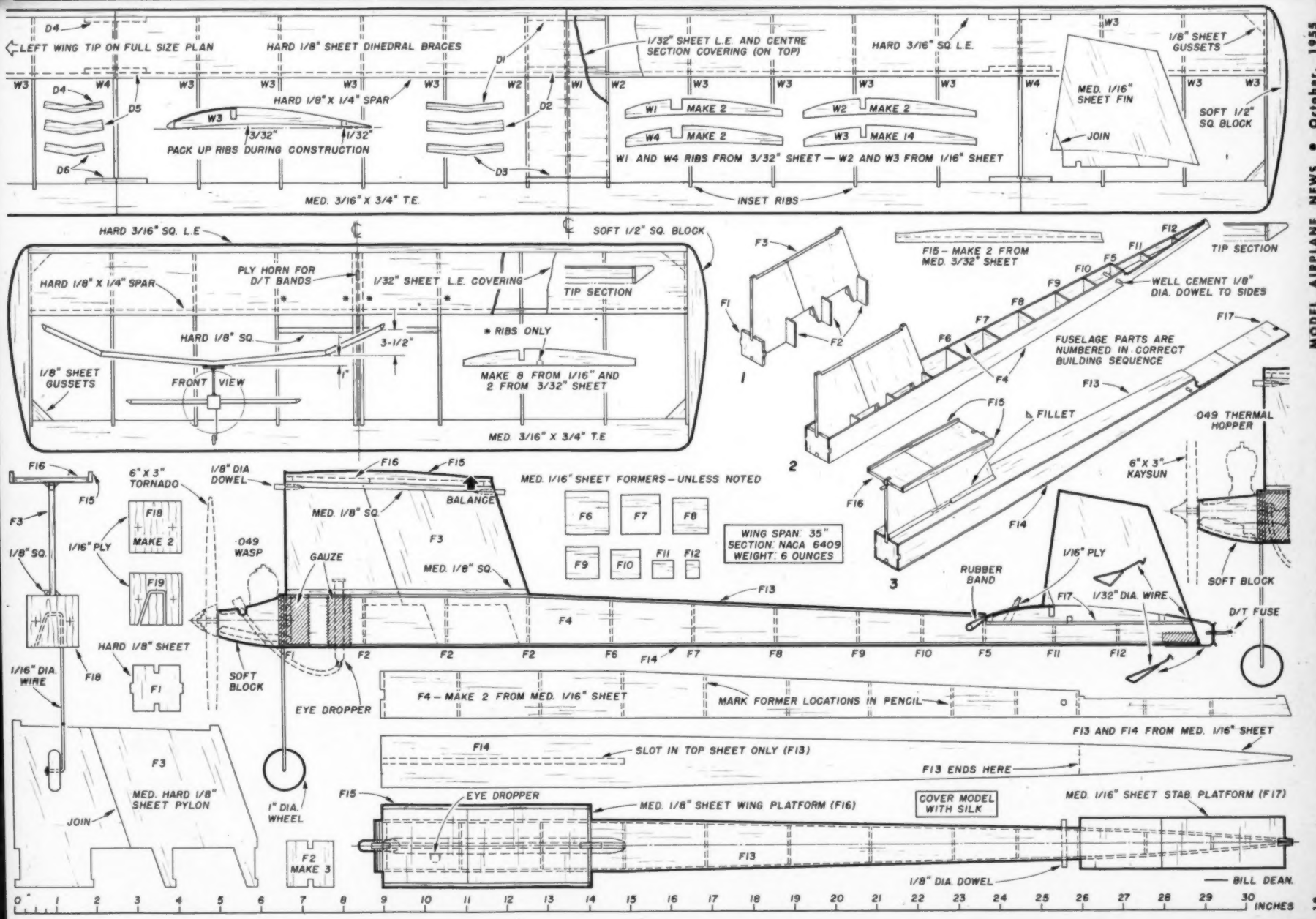

ADD BEHIND "PLUG" IF NECESSARY TO OFFSET STALL
1/16" SHEET NOSE PLUG
3 A


3 B
CEMENT ALUMINUM STRIP TO TIP
TISSUE PAPER HINGE
WIRE HOOK OR LOOP
PROP SHAFT
FRONT
BACK


METAL TEMPLATE
CUT OUT RIB
1/16" SHEET
CUT OFF THREAD ENDS WHEN CEMENT DRIES
CEMENT RIBS IN PLACE-- THEN CEMENT SILK THREAD FROM LEADING EDGE TO TRAILING EDGE AS BRACING
4

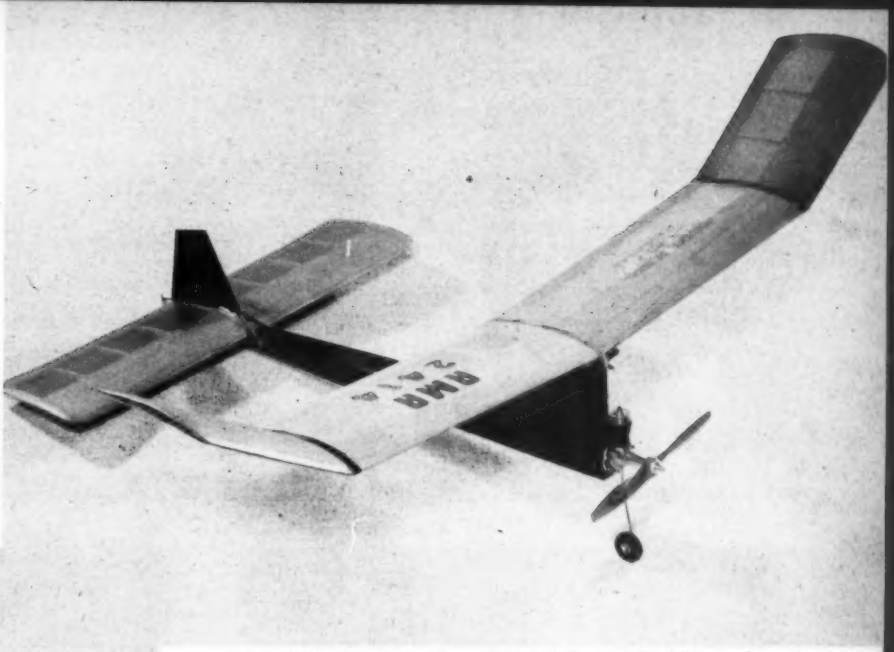

GLUE SHORT STRIPS OF FINE COPPER WIRE TO ALL CONTROL SURFACES
5


MOVE STRUT IN 3/8"
1-1/2" DIHEDRAL
6
EXTEND LANDING GEAR 1/2"

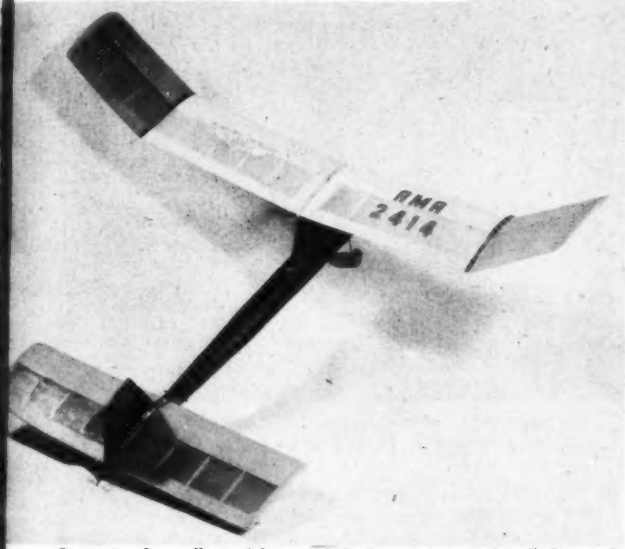

LEFT WING TIP ON FULL SIZE PLAN
HARD 1/8" SHEET DIHEDRAL BRACES
HARD 1/8"X 1/4" SPAR
3/32"
1/32"
PACK UP RIBS DURING CONSTRUCTION
MED. 3/16" X 3/4" T.E.
1/32" SHEET L.E. AND CENTRE SECTION COVERING (ON TOP)
HARD 3/16" SQ. L.E.
MAKE 2
MAKE 2
MAKE 2
MAKE 14
W1 AND W4 RIBS FROM 3/32" SHEET — W2 AND W3 FROM 1/16" SHEET
INSET RIBS
MED. 1/16" SHEET FIN
1/8" SHEET GUSSETS
SOFT 1/2" SQ. BLOCK
JOIN
HARD 3/16" SQ. L.E.
SOFT 1/2" SQ. BLOCK
HARD 1/8" X 1/4" SPAR
PLY HORN FOR D/T BANDS
1/32" SHEET L.E. COVERING
TIP SECTION
HARD 1/8" SQ.
3-1/2"
* RIBS ONLY
1/8" SHEET GUSSETS
FRONT VIEW
MAKE 8 FROM 1/16" AND 2 FROM 3/32" SHEET
MED. 3/16" X 3/4" T.E
F15 — MAKE 2 FROM MED. 3/32" SHEET
TIP SECTION
WELL CEMENT 1/8" DIA. DOWEL TO SIDES
FUSELAGE PARTS ARE NUMBERED IN CORRECT BUILDING SEQUENCE
1
2
3
FILLET
.049 THERMAL HOPPER
6"X 3" KAYSUN
SOFT BLOCK
D/T FUSE
1/32" DIA. WIRE
RUBBER BAND
1/16" PLY
6"X 3" TORNADO
1/8" DIA DOWEL
MED. 1/16" SHEET FORMERS — UNLESS NOTED
BALANCE
MED. 1/8" SQ.
.049 WASP
GAUZE
WING SPAN: 35"
SECTION: NACA 6409
WEIGHT: 6 OUNCES
1/8" SQ.
1/16" PLY
MAKE 2
HARD 1/8" SHEET
1/16" DIA. WIRE
SOFT BLOCK
EYE DROPPER
F4 — MAKE 2 FROM MED. 1/16" SHEET
MARK FORMER LOCATIONS IN PENCIL
F13 AND F14 FROM MED. 1/16" SHEET
SLOT IN TOP SHEET ONLY (F13)
F13 ENDS HERE
MED. HARD 1/8" SHEET PYLON
JOIN
1" DIA. WHEEL
F2 MAKE 3
MED. 1/8" SHEET WING PLATFORM (F16)
COVER MODEL WITH SILK
MED. 1/16" SHEET STAB. PLATFORM (F17)
1/8" DIA. DOWEL
BILL DEAN.
INCHES

Paddy's Wagon

Free flights are becoming big but fragile. So here's small job with big ship performance.



Streamlining doesn't matter at free flight speed, claims author, so why not just a simple squared fuselage and rectangular planforms?



Concept of small model—provided the power is handled—permits use of silk covering without weight penalty, hence greater strength.

By PAT TOMASULO

After many years of contest flying, experience has taught me that consistency, durability and ease of construction are the three prime requisites for a contest model plane.

With the introduction of the "hot" glow plug engine, larger models were built to control the power. However, these planes had to be of light construction to keep the weight down and so were usually too fragile for the rigors of contest flying. As if this weren't problem enough for the "limited time" model builder, a model of this design has somehow been consistently lost at every contest entered, including the latest Mirror Meet.

Therefore, I aimed at a smaller, sturdier model that could last a long time. How to control the power? After long experimentation, I hit on the following set-up: a moderately high pylon, a 50 per cent tail moment arm, a 40 to 50 per cent stab, and the fire wall placed in line with the leading edge of the wing.

The smaller type plane enabled me to use sheeted leading edges in the wings and stabilizers, silk covering and sheet body fuselages. A model of this type should last a couple of seasons.

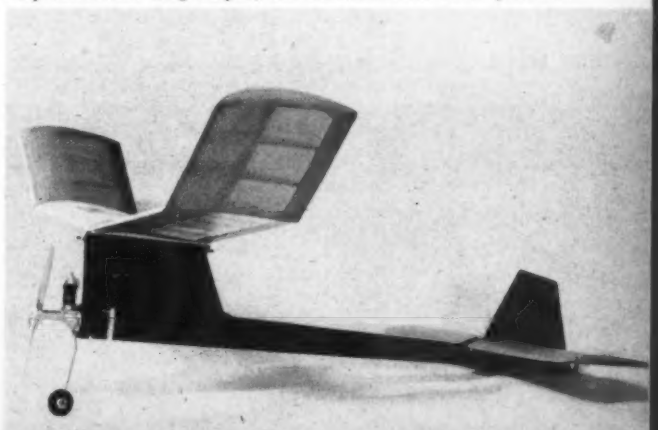
A small square fuselage and rectangular wings were found to work out efficiently. An undercambered wing was used for a steep climb and a slow floating glide. Unlike a real plane, a model flies too slowly to receive any great benefit from streamlining, so the nose cowl shown on the plans is optional.

Construction is ultra simple, but be sure to follow the same building sequence as detailed in the sketches. Start by joining pieces of sheet edge-to-edge to provide the required width for the pylon and flying surface mounts. Cut out all the parts (F1 to F17), using balsa of the particular hardness specified.

Cement former F1 and the three F2 formers to the pylon F3. When dry, cement the two sides (F4) in place, carefully checking alinement so that the extreme ends are level. Insert former F5, then add the intermediate F6-F10 formers. Pull the ends together, then install the two remaining formers (F11 and F12) and the dowel in front of F5.

Now cover top and bottom with the F13 and F14 sheet pieces. Join the F15 wing supports to the wing platform (F16) and cement the latter to the top of the pylon. Trim four strips of 1/8 sq. to a triangular section and add these to the pylon-platform and pylon-fuselage junctions. Next, add the wing dowels, the stab (*Continued on page 38*)

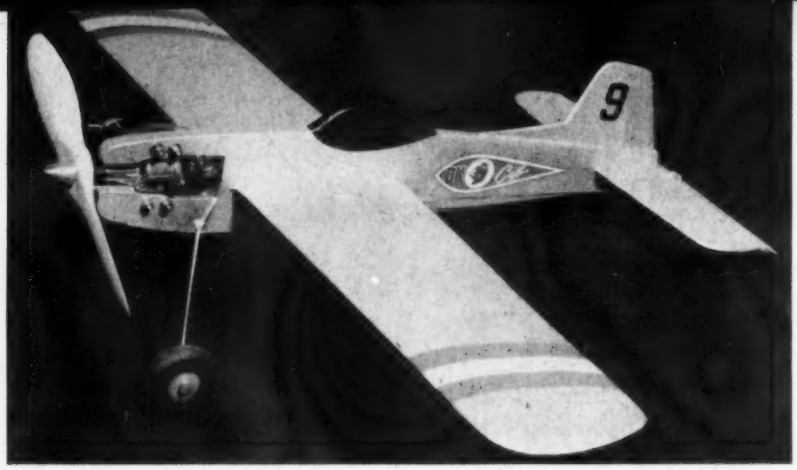
Extreme simplicity appeals to beginners, those pressed for time. Only flat-bottom wing simpler, but undercambered better performer.



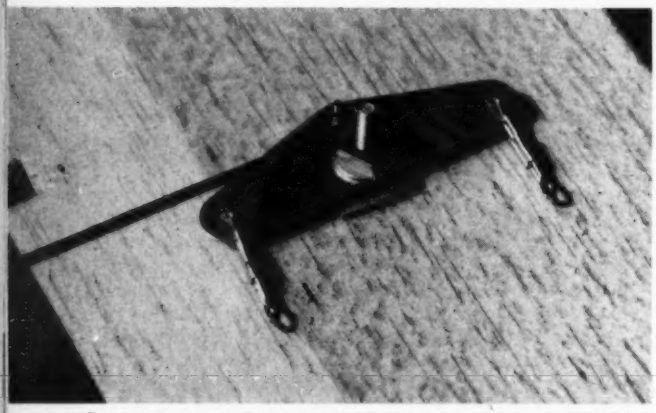
the Scorpion

By P. G. F. CHINN

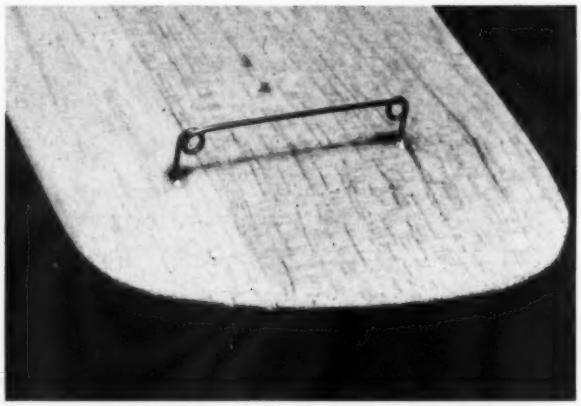
With help of full size drawing on next two pages, you younger fellows can prove you can make your own "ukie" trainer.



1 If you figured you could make a model as neat as this one from raw materials, you'd be sure to build a trainer like this Scorpion. But you can do it! So why just stare at this picture?



4 Bellcrank assembled to wing. Lead-out clips shown are Berkeley snap-connectors. Crank must swivel freely, entire system loose.



5 Line guide, bent from music wire, should be accurately located on tip, strongly cemented. Beginners think a guide can go anywhere.

▸ Every year, MAN gets thousands of new readers: thousands of newcomers to the hobby who know no more about it than any of us did when he first started to build model planes. In fact, the old-timers were in many ways better off; they started on the ground floor, learned as they went along. Nowadays, our beginner is greeted with a confusing array of dozens of different types of models, known under an almost bewildering number of different titles: free flight, controlline, radio control, gas-powered, rubber-powered, glider, jet, scale, Wakefield, Nordic, PAA-Load, Clipper Cargo, Jetex, etc., etc.

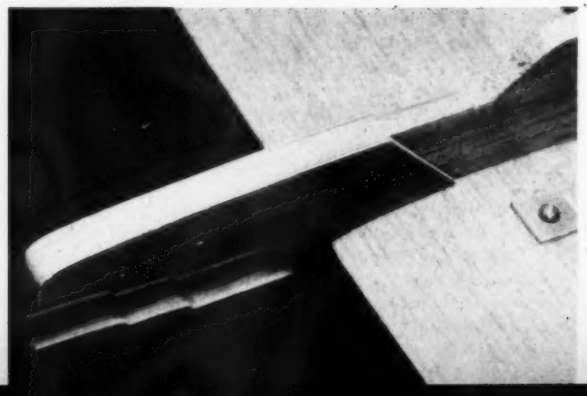
And so the Scorpion controlline trainer was designed especially to meet the requirements of the inexperienced modeler who wants to try controlline flying. Scorpion is simple to build and goes together quickly. It is strong, but if you do damage any part of it, it is easy to repair. The plans are full size.

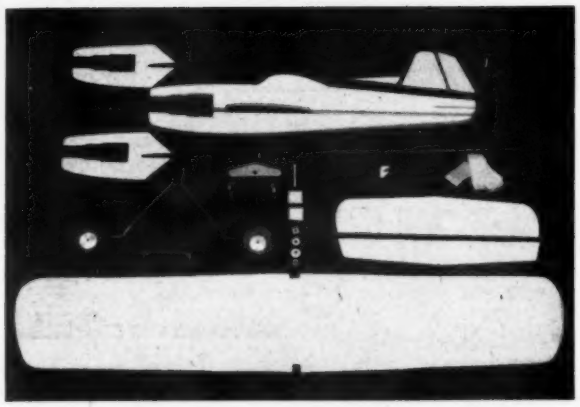
The model will take any beam mount motor from .049 cu. in. to .099 cu. in. displacement. The popular Cub range of motors is particularly well adapted to the model, including the .049-B and .049 Diesel, .074 and .075 models.

You should have no difficulty in getting material for the model from your hobby dealer. To simplify construction, our plan specifies ready-made hardware for the U-control system. For this we chose a Berkeley C-7 bellcrank and elevator horn set. This set is primarily intended for speed models and, as such, it is a non-sensitive set-up, giving a small elevator movement for a large handle movement—just what the beginner needs for his first controlliner. The set includes the bellcrank, bushing, washer, two nuts and a bolt, plus a

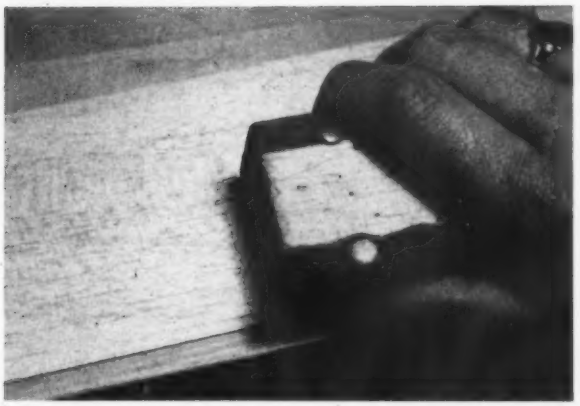
8 Add dorsal fin and rudder, offsetting rudder as shown. This tends to keep model out on the lines to prevent accidental control loss.

9 Fit ply reinforcement plates to each side of nose. Small C-clamps will be of help. Let one coat cement dry, recement and assemble.

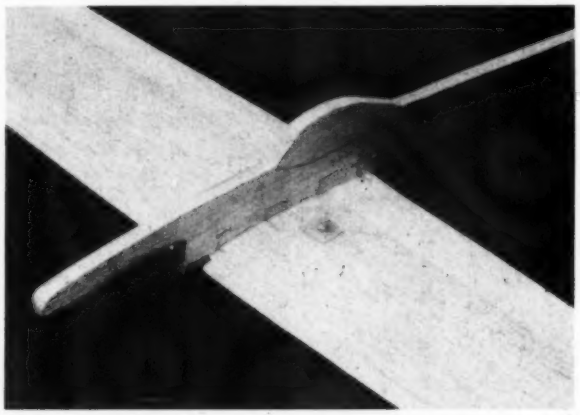




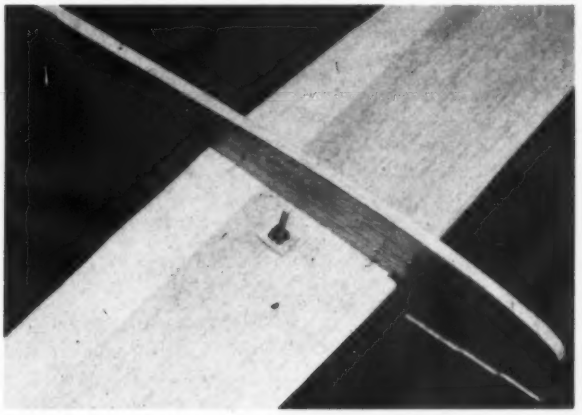
2 These are the parts that go together to make a Scorpion. All metal parts, such as horn, wire and bellcrank, are standard items.



3 You can shape a wing yourself, you know. All it takes is sandpaper block, then elbow grease. Make the block, use thumbtacks.



6 Join top of fuselage to wing, checking for proper alinement. Note use of straight pins. Sight from above and below for accuracy.



7 Add lower fuselage section, pinning in place while the cement dries. For sticking, cement once, dry, cement again, press together.

stamped horn and costs 20c.

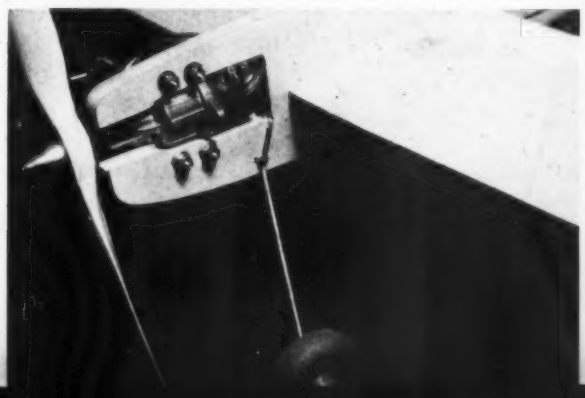
Before you start to cut out the fuselage parts, decide which motor you are going to use. We favored the Cub .049-B and Cub .075 Diesel for our test models. Both these engines have a cylindrical fuel tank, built onto the crankcase cover, which can be rotated slightly, as shown in the photographs, and makes an excellent controlline tank. The plan and photographs show how the fuselage nose is cut to receive the motor crankcase. Mark out the fuselage drawing according to the dimensions of your powerplant if you are using other than a Cub .074 or .075. If your motor does not have a suitable tank, you may mount a separate tank on the right-hand side of the fuselage between the back of the motor and the wing. In this case you need only cut the fuselage slot to fit the engine crankcase.

Start the construction by cutting out all the wood parts, tracing off full size patterns from the plan. Note that the fuselage is in two halves: top and bottom, also, that the wing is slotted at the leading and trailing edges where it joins the fuselage.

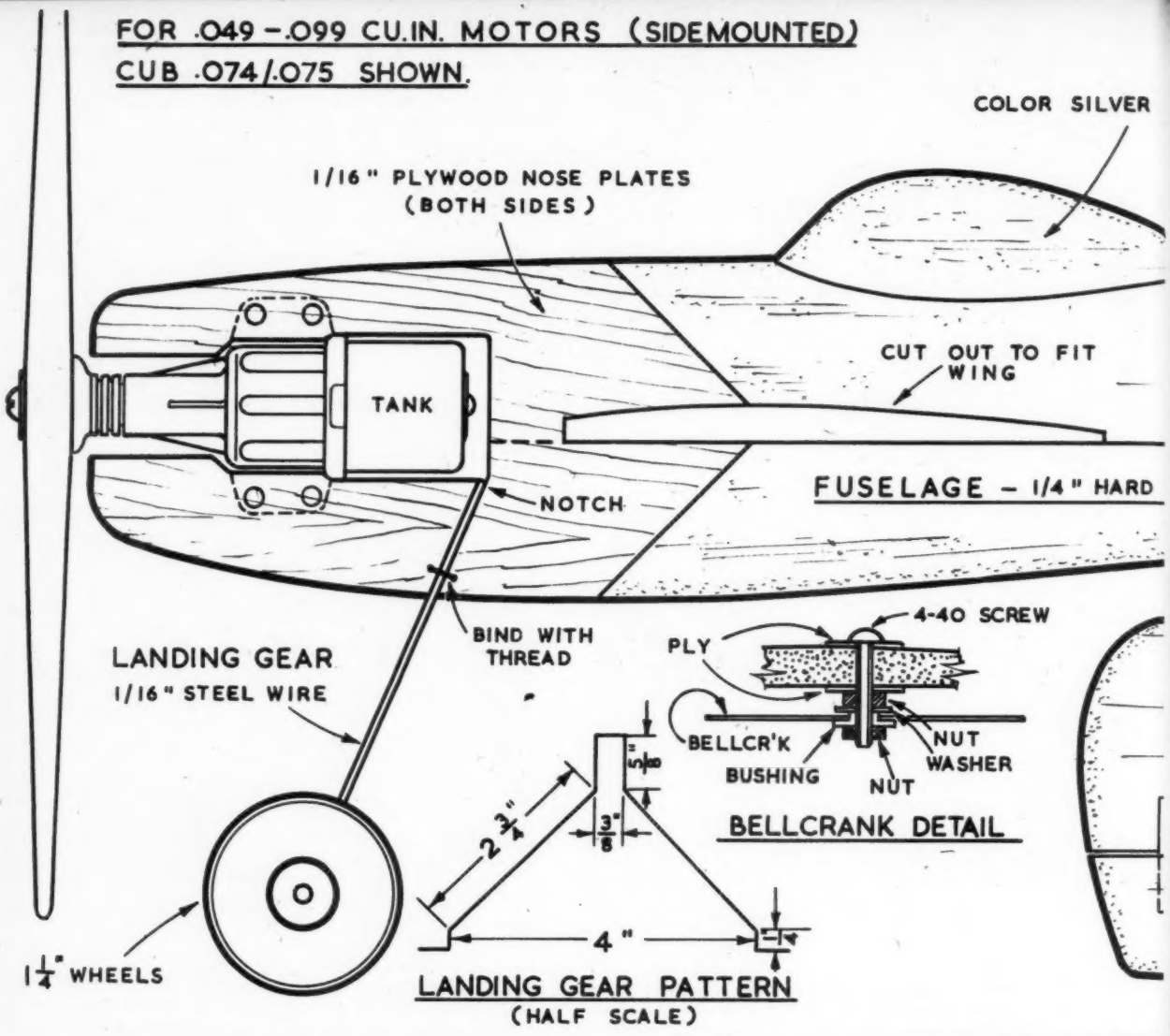
To shape the wing section, use a sandpaper block as shown, holding the wing down firmly on the edge of the bench and sanding down leading and trailing edges to the section shown on the plan. This is not as tedious as it may sound, as balsa can be shaped with a sandpaper block very easily. Don't thin down the edges too much. It is better to leave them a little thicker than the plan shows, than to make the edges too thin and thus liable to easy (*Continued on page 53*)

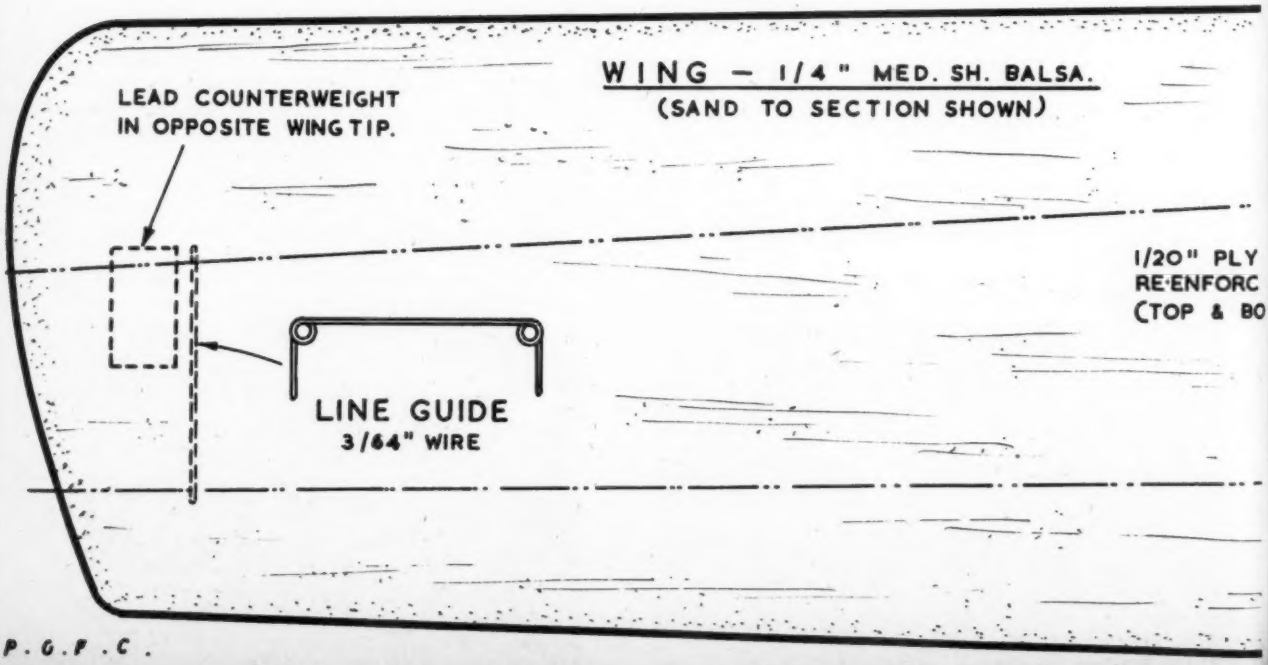
10 Stabilizer now fitted, control system hooked up. Slide stabilizer back and forth to have neutral elevator and cement in place.

11 Fit wheels and check engine and tank installation. Note the arrangement of standard Cub tank. Line up those holes, sir.

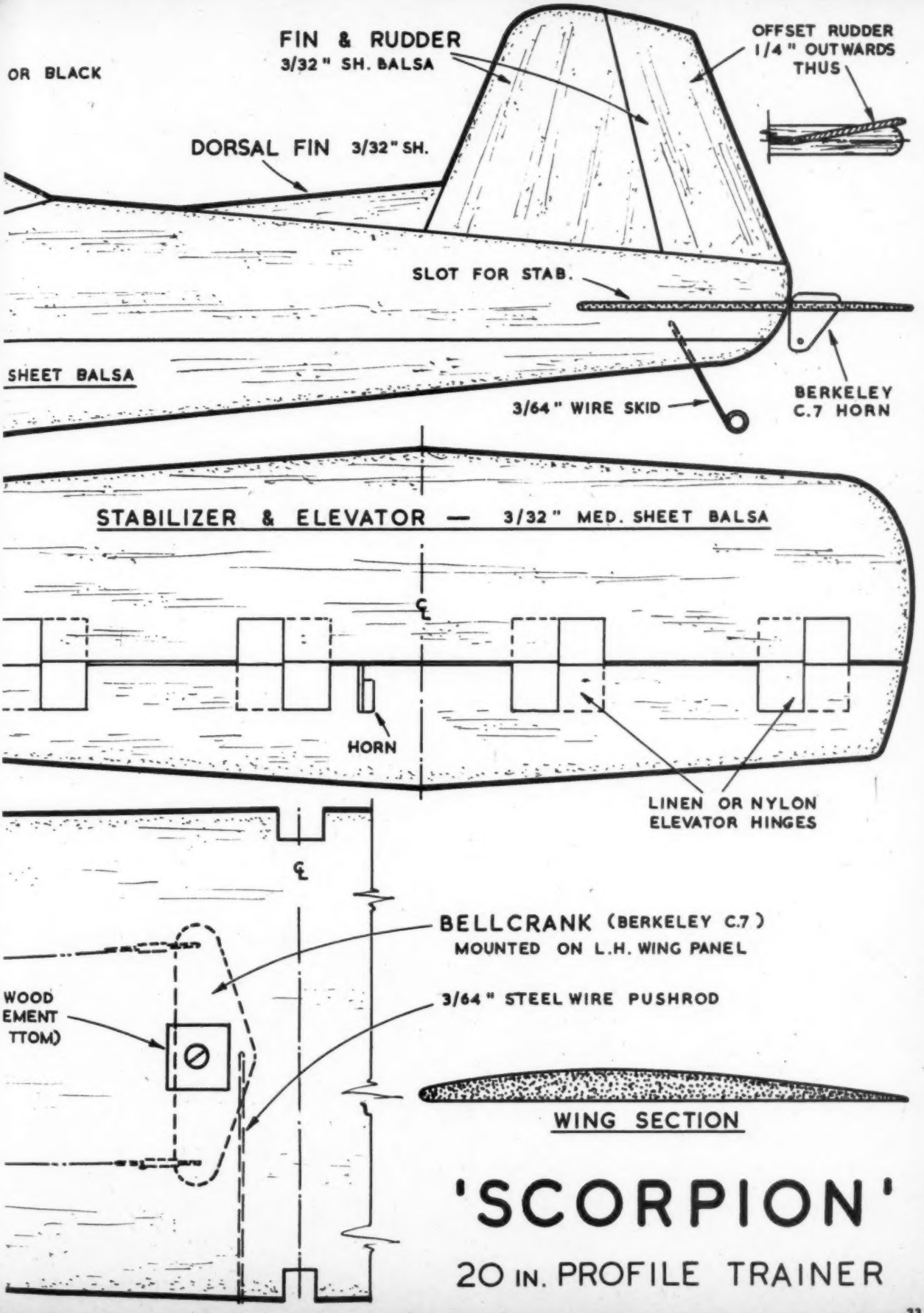


FOR .049 – .099 CU.IN. MOTORS (SIDEMOUNTED)
CUB .074/.075 SHOWN.




WING – 1/4" MED. SH. BALSA.
(SAND TO SECTION SHOWN)
LEAD COUNTERWEIGHT IN OPPOSITE WING TIP.
1/20" PLY RE-ENFORC (TOP & BO
LINE GUIDE
3/64" WIRE

P.G.P.C.

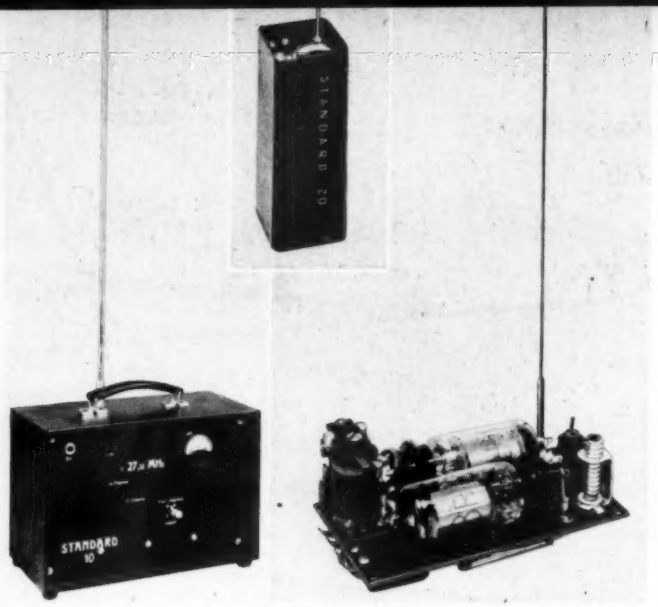


'SCORPION'

20 IN. PROFILE TRAINER

Radio Control News

SE-5, MAN plans, by M. Lynn, Brooklyn, N.Y. weighs 4½ lb., has O & R .19 power. Uses Lorenz two-tuber and ESSCO transmitter.



German Graupner RC equipment. Left, heavy-duty Standard 10 transmitter, operated on storage battery. Two-tube receiver. Top—Hand-held X-mitter.

By E. J. LORENZ

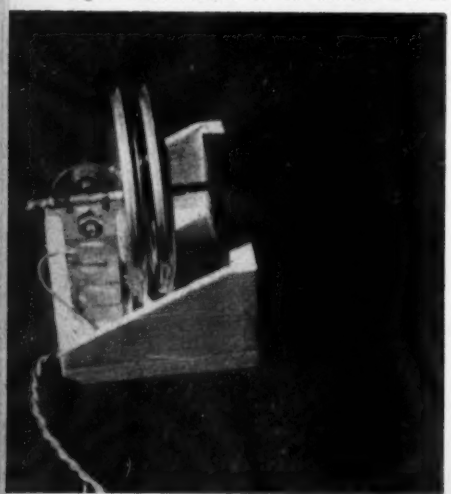
Bigger and better than ever, this month's coverage wanders far and wide, from coast to coast, reviewing all the latest developments.

▸ C. T. Williams, 630 Richmond Drive, N.E., Albuquerque, N.M. has an idea which should provide plenty of ideas for some unusual flying. This is for the use of the aneroid diaphragm from a radiosonde to operate a "fail safe" system or a dethermalizer. Occasionally, one does have an RC model which will hook a thermal or even continue flying long after control has ceased. To prevent the model from going out of sight overhead, why not try the unit shown in Fig. 1 and picture?

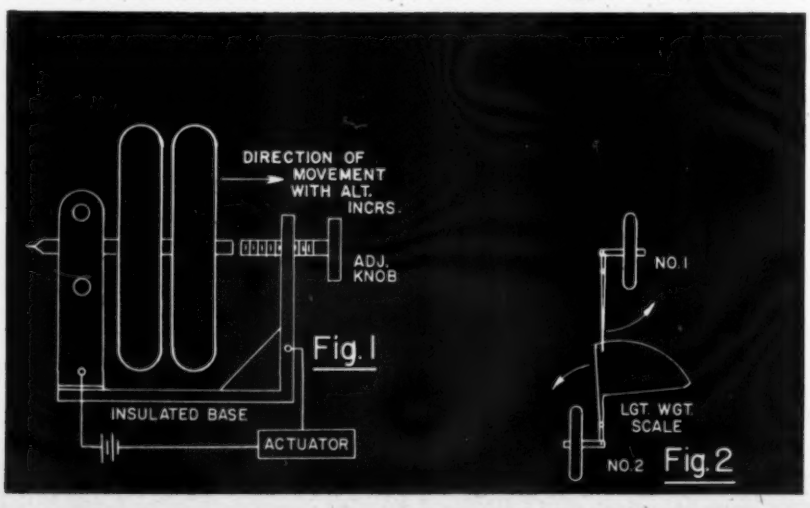
Be sure the framework is as rigid as possible. For a movement of 1/64 in. at the contact points, it will require a difference in altitude of approximately 1,000 ft. This setting may be checked on a high hill or building, carrying the unit aloft in a plane and checking against the altimeter in the plane or by the use of a bell jar and vacuum pump in your school's physics lab. When using the bell jar technique, a decrease in pressure of 1.1 in. of mercury, or 34 millibars, will be the equivalent of an increase of 1,000 ft. in altitude. This unit may also be used to operate a dethermalizer system on free flight models and to trip camera shutters on your RC job.

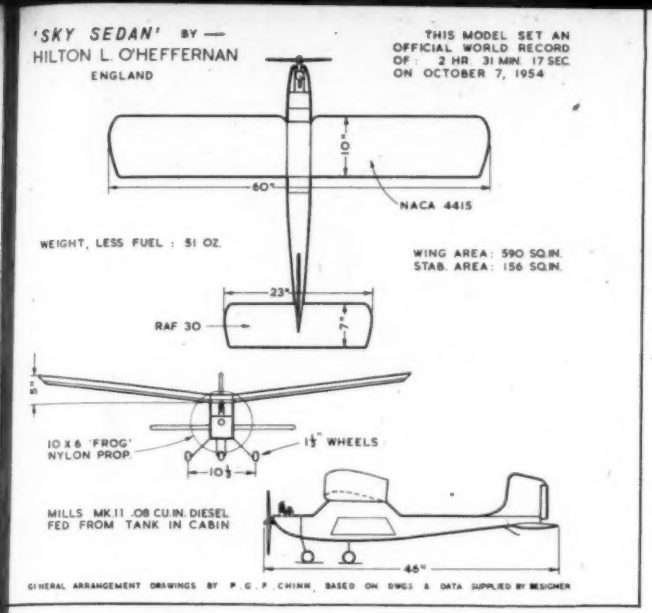
Fig. 2 shows the basic layout which we have played around with for about a year. Though lack of time keeps it unfinished, preliminary checks have shown the operation to be satisfactory. Two units are used, along with their linkages, and are mounted as shown. One unit carries a lightweight scale which deflects in one direction and the other unit carries the scriber or recording stylus, which moves in the opposite direction. In this way, utmost sensitivity can be achieved and an actual record obtained of the flight. The scale may be a piece of celluloid which has been blackened with carbon from a burning candle and the scriber then is merely a point which will provide a trace. Adjustments are built in to provide for variations in local terrain and provisions are made for changing the pre-calibrated scales. We feel that work should be done along this line and the column would like to hear from anyone making other suggestions. The radiosondes may be obtained from Control Research, Hampton, Va.; ESSCO, 58

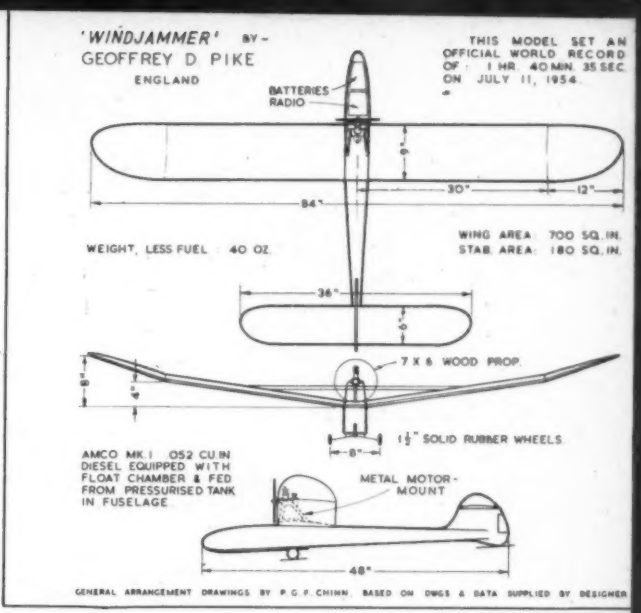
Williams' aneroid diaphragm system for working a dethermalizer or an altitude control.



Below—Left sketch shows how Williams' dethermalizer works. Compare with picture, far left, and text. Right—sketch shows an aneroid barograph for camera trigger, etc., by the author.




'SKY SEDAN' BY —
HILTON L. O'HEFFERNAN
ENGLAND
THIS MODEL SET AN OFFICIAL WORLD RECORD OF: 2 HR. 31 MIN. 17 SEC. ON OCTOBER 7, 1954
60"
10"
NACA 4415
WEIGHT, LESS FUEL: 51 OZ.
WING AREA: 590 SQ.IN.
STAB. AREA: 156 SQ.IN.
23"
7"
RAF 30
10 X 6 'FROG' NYLON PROP.
1½" WHEELS
10½"
MILLS MK.II .08 CU.IN. DIESEL FED FROM TANK IN CABIN
46"
GENERAL ARRANGEMENT DRAWINGS BY P. G. F. CHINN, BASED ON DWGS & DATA SUPPLIED BY DESIGNER

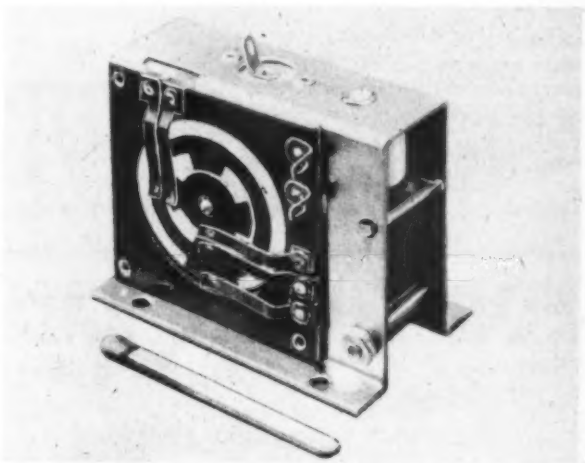

'WINDJAMMER' BY-
GEOFFREY D PIKE
ENGLAND
THIS MODEL SET AN OFFICIAL WORLD RECORD OF: 1 HR. 40 MIN. 35 SEC. ON JULY 11, 1954.
BATTERIES
RADIO
84"
30"
12"
WEIGHT, LESS FUEL: 40 OZ.
WING AREA: 700 SQ.IN.
STAB. AREA: 180 SQ.IN.
36"
7 X 6 WOOD PROP.
1½" SOLID RUBBER WHEELS
AMCO MK.I .052 CU.IN. DIESEL EQUIPPED WITH FLOAT CHAMBER & FED FROM PRESSURISED TANK IN FUSELAGE
METAL MOTOR-MOUNT
48"
GENERAL ARRANGEMENT DRAWINGS BY P. G. F. CHINN, BASED ON DWGS & DATA SUPPLIED BY DESIGNER

Endurance flights are great interest-getters. Shown here are two of the three recent world record holders: Sky Sedan, above, and, at right, Windjammer. Note the dimensions, gross weights, propellers, then the engines. Now consider that these ships take off. Zounds!

Walker St. and Gyro Electronics, 325 Canal St., both in New York City.

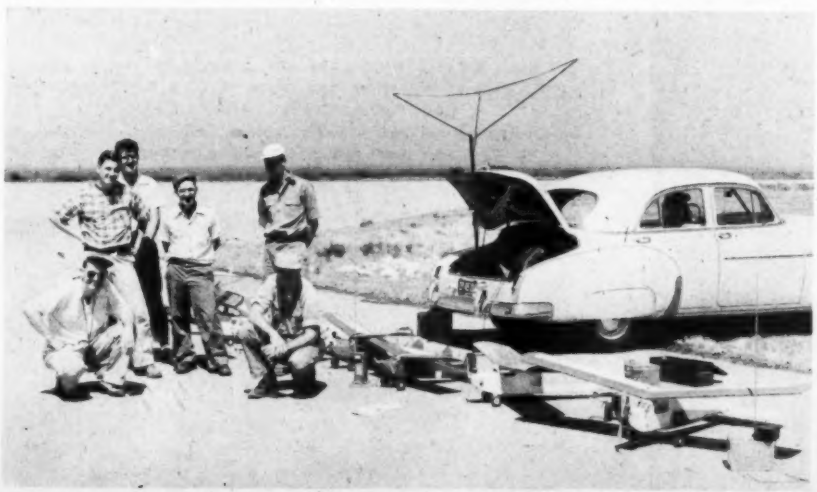
Speaking of thermals, one little known fact about getting an RC job out of a thermal came from Hal deBolt and from Walt Good about five years ago. To attempt to spiral the ship down is useless. Chances are, the spiral will only aggravate the condition. Not all ships have elevator control, which is ineffective anyway in a strong thermal. What is the solution? A thermal is generally a column of heated air, the area of which is relatively small. In view of this, the most effective way of getting out of a thermal is to keep the plane on a straight heading. Since the plane has a forward speed, however slight it may be, it will eventually fly out of this rising column of heated air. We've done this and have seen Walt do it and it appears to be the only sure way of achieving the desired results.

Quite a few modelers have purchased the small 6-volt wet cells (N-T-6) but after the first attempt to use them, complain they have no life. A number of factors govern this so-called fault. First, use *only* the recommended electrolyte. This can usually be purchased from the same source that sells the batteries. Follow instructions for (*Continued on page 26*)



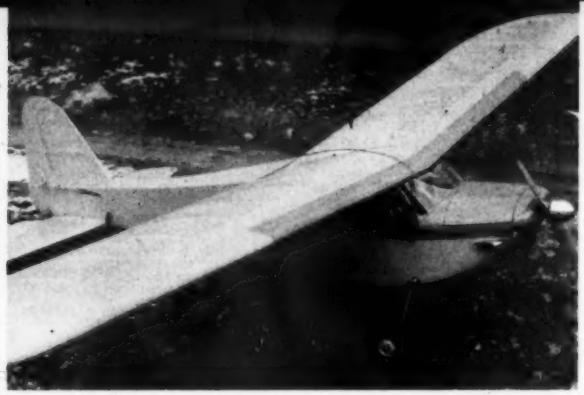
Babcock Motor Speed Control and Sequence Reversing Relay. Ideal for boats and cars, it can also be used in airplanes. Weighs 1½ oz.

A Southern California session, L to R: E. J. Brown, Jim Mason, Gary Stevenson, Ivan Hartzell, George and Ernie Litchfield. Their radios range from the Lorenz to the Rockwood five-channel.



Dan Johnson, San Diego Radio Modelers, here checks out RC Cruiser. Twin electric drive.

Shown at Mirror Meet was Berkeley's new Navion, another giant RC. Designed, built by Henry Struck, plane is now undergoing flight tests.



Frank Schmidt built this 6½ ft. T-Craft. Weighs 7½ lb. on a Torp .35. Uses five-channel equipment and it is fully stuntable. Is real looking.

(*Continued from page 25*) the particular battery. Second, charge the battery in the manner prescribed for the particular battery. Third, do not attempt to over-use the battery. This is perhaps the most important item, relative to the life of the battery. If a battery is rated at 4 amp-hours, it means, theoretically, that it is capable of holding up for four hours with a drain of 1 amp or for one hour at a drain of 4 amps.

However, such is not always the case, since the battery has also been designed to operate most efficiently at a given current drain. Thus, if the battery was designed to deliver 2 amps and was rated at 4 amp-hours, it will deliver 2 amps for two hours. Anything below this current drain will give prolonged life, while anything above it will considerably shorten the life. Remember that an electric motor which draws but ½ amp when running with no load may go as high as 2 amps when starting under a load. Rapidly reversing the motor will also require more current. Don't expect too much from your equipment unless you know what it was designed to deliver.

The RK-61 tubes seem to be holding up okay now, especially in sets which have made the changes in the grid capacitor and resistor as given in this column several months ago (grid capacitor 120 mmf and grid resistor 4.7 meg).

Are you tired of the run-of-the-mill boat or ship model? Do you want something different and something that will really take the radio gear? Then see your local dealer about the Veco Tugboat 35. This 35 in. long, 8 in. beam model of an ocean-going tug is the latest thing in RC boat kits. Capable of carrying 25 lb., this plastic job should stop the show wherever you go.

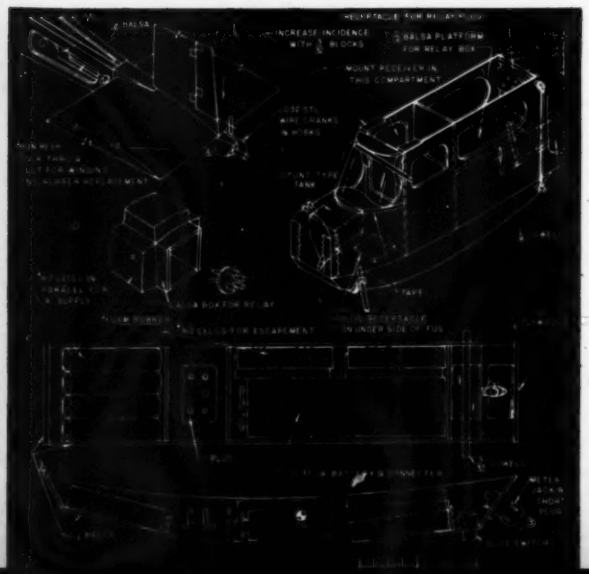
HERE and THERE

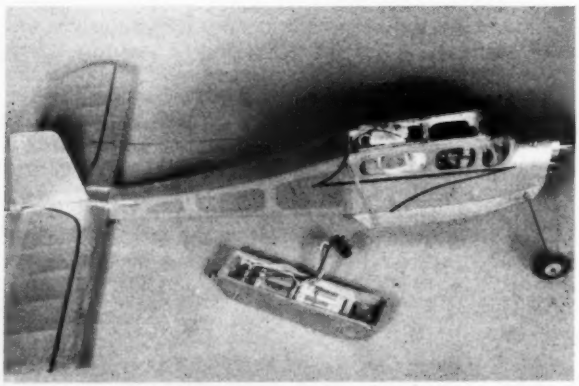
Frank Ritchy of the East Park Model Club, East Park, N.Y. has been doing quite well with his Veco Tugboat 35, powered with a Panther 9002 motor for the main drive. A Citizen-Ship 465 mc radio unit allows him to operate with another person using 27 mc. Rudder and (*Continued on page 44*)

FOR THE RC FAN

By WM. C. GROVE, JR.

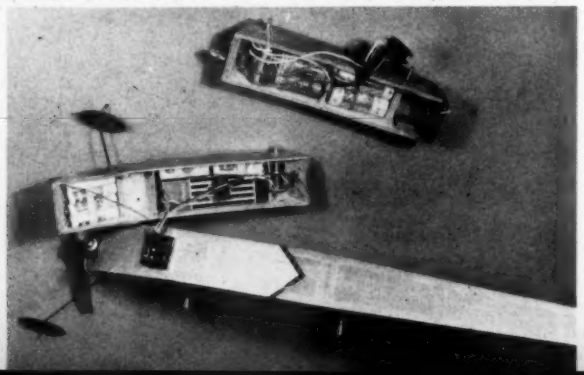
The external battery package shown in the diagram and photos makes possible the conversion of A.2 cabin free flights to RC with a minimum of effort. It also allows aircraft of this type to remain lightly constructed and yet withstand rough usage, as the Pac containing the heavy batteries leaves the aircraft in the event of a (*Continued on page 42*)





Author's Kenhi free flight showing a sample battery pack attached under fuselage and another pack that is ready to be attached to fly.

One advantage of pack idea is battery complement combinations. If ship hits hard, pack flies off, avoiding fuselage breaking up.



INDOOR

Stick: Open — Wm. E. Atwood, 21:51.4; Sr. — Hal Cover, 15:11.3; Jr.—Brent Hawkins, 8:32.

Paper-Stick: Open — Joseph Bilgri, 14:13; Sr. — Ronald Atwood, 10:23.4; Jr.—Brent Hawkins, 6:06.4.

Cabin: Open — Joseph Bilgri, 13:03.0; Sr. — Hal Cover, 9:45.3; Jr.—Brent Hawkins, 3:44.0.

Hand-Launched Glider: Open—Stewart Savage, 1:10.0; Sr.—C. R. Stevens, 1:06.6; Jr.—Larry Severson, 0:51.6.

GLIDER

Hand-Launched Glider: Open—Henry Cole, 12:04.0; Sr.—Edward Schmutz, 14:11.3; Jr.—Ernie Prosch, 8:49.6.

Towline, Limited: Open—James R. Scarborough, 13:39.0; Sr.—Donald Tune, 13:25.0; Jr.—Ralph Harmon, 9:11.4.

Towline, Nordic: Open—Richard Sladek, 15:00.0; Sr.—Fred Wells, 14:02.0; Jr.—David Arne, 13:13.0.

RUBBER

Wakefield: Open—Gerald Thomas, 14:14.1; Sr.—David Kerzie, 11:55.6; Jr.—Gary Grenoble, 11:10.2.

Unlimited: Open — C. B. Wright, 14:13; Sr. — Don Alberts, 14:44.8; Jr.—Brent Hawkins, 8:42.

FREE FLIGHT

Half-A: Open—Bill Fox, 20:11.0; Sr.—Don Alberts, 36:00.0; Jr.—Gary Grenoble, 16:34.0.

Class A: Open—John D. Nogy, 18:00.0; Sr.—Martin Wolff, 16:36.2; Jr.—David Arne, 14:00.0.

Class B: Open—Harry C. Gould, 29:25.0; Sr.—Robert Gelvin, 16:56.0; Jr.—Robert Johnson, 14:07.8.

Class C: Open—Edward H. Aikman, 20:02.2; Sr.—Don Geiler, 27:26.0; Jr.—Jack Linn, 16:36.0.

ROW: Open — Manuel D. Andrade, 20:48.2; Sr. — Jack Thomas, 13:28.0; Jr.—Jack Moreland, 12:51.0.

Flying Scale: Open—Robert W. Hill, 212; Sr.-Jr.—Robert Gelvin, 85.

PAYLOAD

American Class: Open — L. T. Everett, 14:25.2; Sr.-Jr. — Richard Epstein, 15:22.0.

International: Open — W. S. Blanchard, Jr., 13:18.0; Sr.-Jr. — Robert N. Patchin, 11:42.3.

Clipper Cargo: C. O. Wright, 41¾ oz.

Endurance: Richard J. Heist, Sr., 1:08:14.6.

CONTROLLINE

Speed Half-A: Open—Clem-Beasley-Kirn, 100.89; Sr.—Mike Dawson, 79.29; Jr.—Michael O'Bryan, 73.95.

Speed A: Open — William Wisniewski, 141.73; Sr. — Gayle Clement, 134.73; Jr.—Michael O'Bryan, 126.40.

Speed B: Open—Clem-Beasley-Kirn, 143.08; Sr.—Daniel Berry, 127.75; Jr.—Clifton Medlock, 129.77.

Speed C: Open—Robert Lauderdale, 168.47; Sr.—Richard C. Bradford, 154.05; Jr.—Michael O'Bryan, 149.25.

Proto Speed: Open — Clem-Beasley-Kirn, 113.85; Sr. — Dennis C. Schauer, 83.23; Jr.—Richard Rehwald, 85.38.

Jet: Open — Clem-Beasley-Kirn, 162.83; Sr. — Donald R. Monson, 145.74; Jr.—Kenneth H. Kaiser, 135.74.

Stunt: Open—Robert Palmer, 362.0; Sr.—William A. Cummings, 358.4; Jr.—Edwin J. May, 319.0.

Flying Scale: Open—T. Dean; Sr.—Jimmie McCroskey; Jr.—Gary A. Cummings.

Combat: Open — Donald R. Smith, 540; Sr. — James Levrett, 560; Jr.—Michael Burke, 520.

Team Racing: Dennis C. Schauer.

U. S. NAVY CARRIER

Open — R. M. Post, 391.93; Sr. — Clyde Hamilton, 377.47; Jr.—Richard E. Boozer, 269.12.

RADIO CONTROL

Multi-Channel: M. A. Schneider, 156⅔.
Rudder-Only: Edward L. Friend, 76⅓.

HILLER HELICOPTER

Parnell Schoenky, 213.79.

Open and Grand Champion, Woody Blanchard, proved lightning does strike twice in the same place. Jr. Champ, Dave Arne, left; Sr., Don Alberts.

1955 nationals

Results of the 24th Annual "Big" Meet, Held at Los Alamitos Air Station, Calif., July 18-24.

WHO WON?

Grand National Champ	W. S. Blanchard, Jr.
Open National Champ	W. S. Blanchard, Jr.
Sr. National Champ	Don Alberts
Jr. National Champ	David Arne
Club Team Champ	Thermal Thumbers

Gay flags fluttering from Los Alamitos control tower added to holiday spirit of Sunday's close-out flying—a tradition for the week-end crowds.

NEW CLASS "B" SPEED RECORD OF 135 M.P.H. SET WITH

TESTORS "39" FUEL

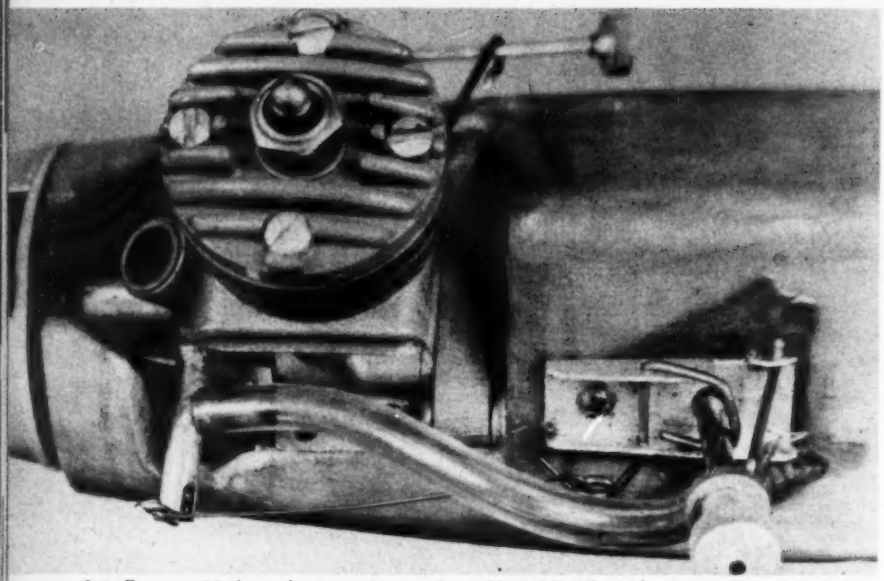
Pete Kutschenreuter (shown above) set this new record of 135 m.p.h. for class "B" Speed on May 21, 1955 while flying for "Skip's Island Hobby Shop" at "The Mirror Model Air Show", Brooklyn, New York. Says Pete: "With all the champs at the Island Hobby Shop it's Testor's products all the way! Testor's fuel, finishing materials, cements, and balsa are the finest to be found anywhere." Why don't *you* take a tip from this new speed champ and insist on Testor's . . . *at dealers everywhere.*

. . . *and here's an interesting (and typical) comment from Joseph "Skip" Feldmann of Skip's Island Hobby Shop, Flushing, New York:*

"We have always recommended Testor's '39' Fuel with each new engine purchased from us and will continue to do so in the future. It is unsurpassed both as a break-in fuel and as an all-around all-purpose sport and competition fuel."

TESTOR CHEMICAL COMPANY • ROCKFORD, ILLINOIS

Stop that Engine NOW



Cut-off open. Works on larger engines, such as this K & B Allyn .15. But 5/32 OD tubing for the body, 1/8 OD tubing for plunger and a .012 wire spring wrapped on 1/16 wire mandrel.

Short motor runs at free flight contests make an accurate, reliable shut-off a must. This highly successful shut-off has a number of features not found in commercial items.

By ROBERT L. HATSCHEK

Here's proof that good things come in mighty small packages.

Many free flight contests today, because of weather and limited field conditions, are held with a ten-second engine run limit. Thus, a reliable engine cut-off is vital, for if your engine runs only nine seconds, you've lost ten per cent of your altitude, and if it runs eleven seconds, your flight is disqualified.

The cut-off described here presents a combination of highly desirable features not found in any commercial items now available. The major advantages are as follows:

1. Fuel is cut off positively at the engine itself, preventing any slight overrun caused by fuel draining from the fuel line.

2. External "plumbing"—tubing running from the tank back to the timer and from the timer forward to the engine—is eliminated. This is not only unsightly, but also often makes an engine difficult to start or inconsistent in operation.

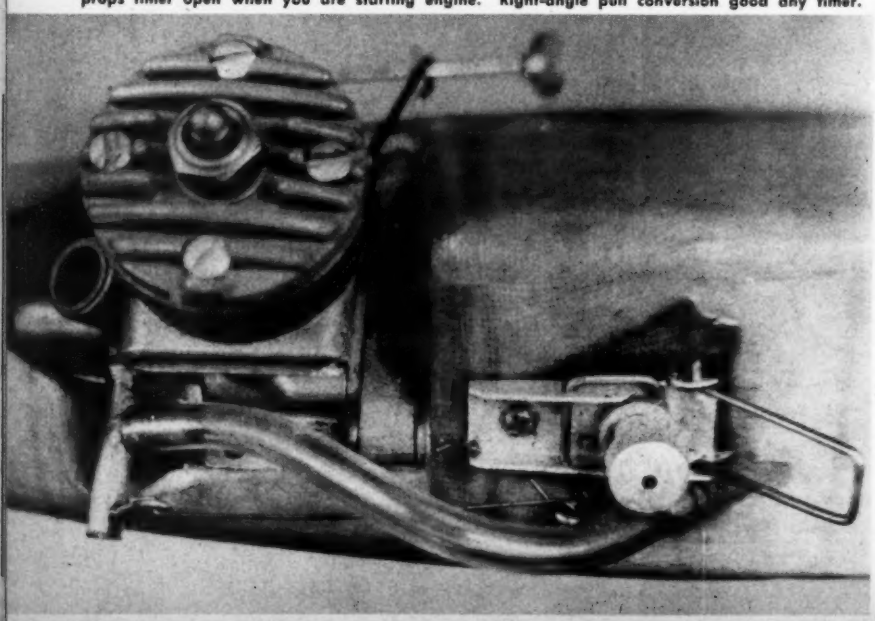
3. Timer may be mounted in any location or position, giving better protection to the timer and avoiding possible structural problems.

4. Mechanism is extremely well protected from dust and grit. We have never had a failure or slow-down as a result of dirt and we've flown under some pretty gritty conditions. As a matter of fact, we've never had *any* failures.

5. The unit itself is small and its weight is insignificant.

6. It costs practically nothing to make.

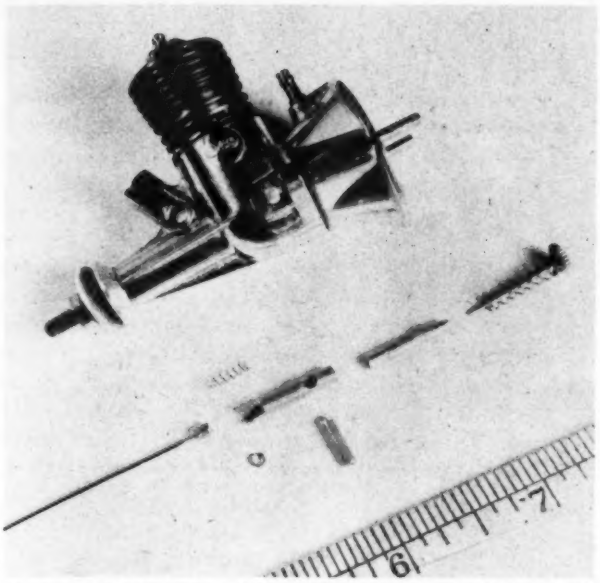
Shut-off here actuated. Modification shown was made on old Austin timer. The U-shaped wire props timer open when you are starting engine. Right-angle pull conversion good any timer.



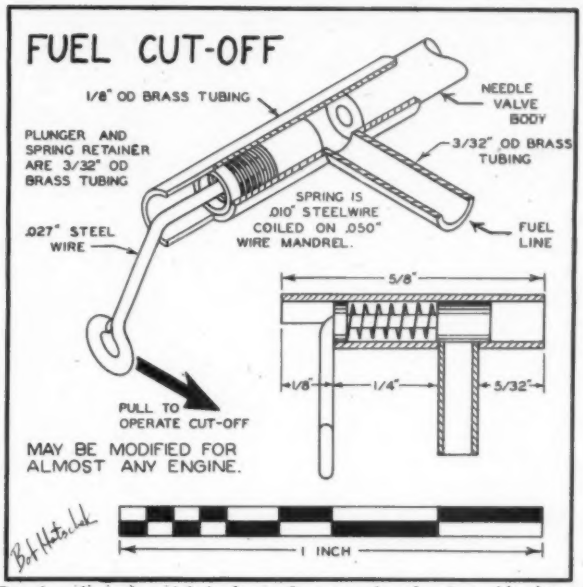
While we have used it only on free flight models, it could also be used to advantage in team racers by using full down-elevator to trigger the mechanism as in standard practice. Another use would be for engine cut-offs in radio control models and, with slight modification so that it could be pulled in and out, it could be used on two-speed engines for radio, Navy carrier or U-control stunt models.

A word about timers themselves. Any timer can be used to operate this cut-off, but it must be an accurate one. In large models, we use old Austin timers which originally had electrical contacts on them. These are modified to give a right angle pull. We prefer these because of their needle valve adjustment which is far more regular and reliable than the sponge rubber valves found in many of today's commercial timers. The latter are too subject to variation because of fuel, oil or moisture in the bleed valve.

But the Austins, in our opinion anyway, are too large and heavy for Half-A



Atwood .049 with needle valve body removed. Shows cut-off parts not assembled, except for plunger, rod. The rod is long for convenience.



Drawing shows how job is done. By comparing drawing with pictures a clear idea of the parts and working principles will quickly be gained.

models. Here we use the small Elmic dethermalizer timers because they are extremely light, are as reliable as any comparable units, and can be completely enclosed for protection and streamlining by mounting them longitudinally within the slimmest fuselage. A side advantage is that, in this position, a pull-wire can be connected directly to the timer arm with no modifications necessary.

Here's the simplest and best way we've found to make the little gadget:

1. Carefully remove the needle valve body from the engine. If it's pressed in, use a vise and a short length of metal tubing with the proper inside diameter in the reverse of the way shown for reinstalling the valve body.

2. File off the small ridges which normally retain the plastic fuel line tubing on the needle valve body. This should be fitted into a standard size of brass tubing. We've found that 1/8 in. OD tubing fits most Half-A engines and 5/32 in. OD tubing does the same on most larger engines. We'll assume you have a Half-A and will use 1/8 in. tubing.

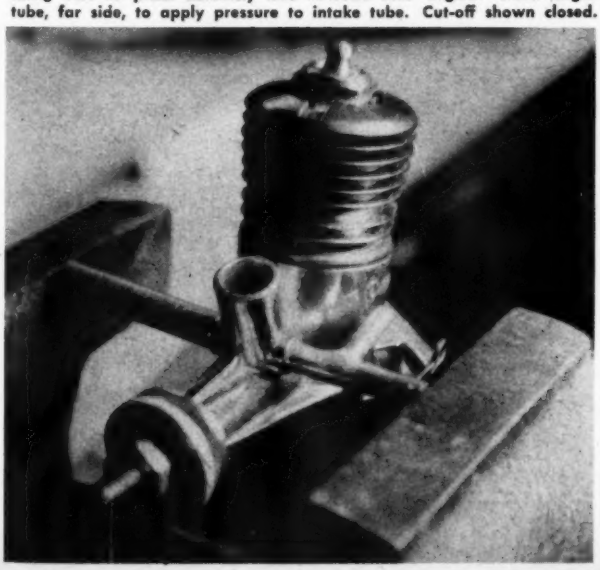
3. Measure how far into the 1/8 in. tubing the needle valve body will go, then mark the tube 1/8 in. farther out. Drill a 3/32 in. hole on this center mark.

4. Cut off the 1/8 in. tube 3/8 in. from the outside of the 3/32 in. hole. File away about half the tube on the same side as the 3/32 in. hole for a distance of 1/8 in. from the outer end. This slot will permit the plunger to slide in and shut off the fuel.

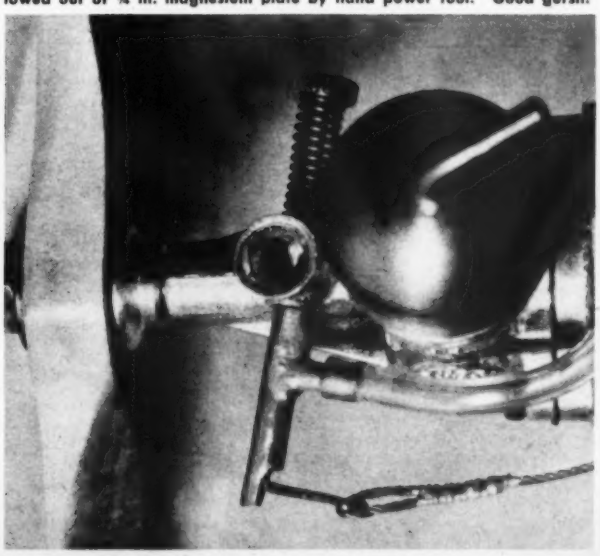
5. Solder a 3/8 in. length of 3/32 in. OD brass tube in the hole drilled in Step 3. It's a good idea to file across the end of this tube with a small round pattern file but it isn't absolutely necessary. With the same file, smooth out the inside of the 1/8 in. tube. You may have to ream it first with a 3/32 in. drill. A good way we've found to "lap" the bore of this tube is to put some oil on a length of 3/32 in. OD tubing or wire, rub it with fine garnet paper so that the oil picks up some abrasive, and slide the cut-off body back and forth on this until the inside is smooth.

6. Solder a 1/8 in. length of 3/32 in. OD tubing to the end of a piece of wire (.025 to .032 (*Continued on page 49*)

Using vise to press assembly into Atwood .049 engine. Note larger tube, far side, to apply pressure to intake tube. Cut-off shown closed.



McCoy .049 Diesel with cut-off closed. Note homemade fuel tank hollowed out of ¼ in. magnesium plate by hand power tool. Good gorsh!



Flash News

Many developments push back the air frontier — this monthly report will keep you in the know.

▼

By JOHN F. RUDY

Planes, planes, planes! While the headlines appear to dote on those Russia is building, for some strange reason little attention is paid to the many fascinating new American planes. Let's run down the list:

XF8U-1, as yet unnamed, by Chance Vought, the Navy's newest jet designed to operate from carriers at supersonic speeds. Titanium is used in the plane to save weight. This one is really trim, a smooth job.

TF-102A is Convair's latest two-place combat proficiency trainer for the bigger F-102A. The trainer has a similar— to the big interceptor—afterburner, which helps put it into a high supersonic speed class.

F3H-2N *Demon* is McDonnell's powerful single-jet, carrier based fighter going into production soon for the Navy. It will have the Navy gray and white color treatment, be equipped with a new, more powerful turbojet in the 10,000 lb. thrust class.

Lockheed's *Electra* will be rushed into a speedy production—a 39-month timetable for the first American turbo-prop airliner. First flight of the 414 mph job comes in October, 1957, deliveries starting in August, 1958.

Watch for the PH-42. It will be Piasecki's commercial version of its H-21, "work horse" whirlybird for AF, Army, etc. The PH-42 will carry up to 19 passengers, come in a variety of arrangements from a "combo" 'copter—both passengers and freight—to all-cargo or all-passenger models. Mail and baggage will be "helipacked" in a container under the fuselage of the same name. This means extra space for passenger comfort.

From inside the Pentagon, our informants relate that it will not be long ere ADIZ (Air Defense Identification Zones) will be broadened from covering just a few areas to encircling the whole country. Along with this will be stricter policing of aircraft. Flights out of U.S., through ADIZ, will be cleared quickly; those coming in, rigidly controlled. This probably will mean much more AF activity. Every unidentified plane now brings a scramble in seconds, and there are plenty around the few ADIZ.

In the skies abroad: Just in case you're not aware of what our friends are doing in aviation, here's a quick rundown . . . Fokker in Holland has its F-27 *Friendship*, a passenger-freight job with Rolls-Royce turboprops. It will be close to the DC-3 in size, have a high wing design to speed loading, can carry 28 to 36 passengers, cruise at 220 mph, range of about 1,000 miles.

A new Spanish Air Force is on the way. The current obsolete *Junker* 52's, *Heinkel* III's, *Messerschmitt* 109's will be replaced by a three wing force, mostly U. S. planes. About 230 North American F-86 Sabres will be delivered soon. More important, some of America's SAC bases in Britain—as the English develop their own SAC—may be moved to Spain under a new USAF command, the Iberian Command.

Canada will use its CF-100 *Canuck*, 17-ton jet, in testing a new runway barrier nylon net. The U. S. has developed such nets for T-33's, F-86's and F-84's, does a fair job in bringing jets to a stop if and when they lose brakes on landing, overshoot runways on a flame-out landing, or lose power on take-off. The *Canuck* may not be so easy to stop, however.

Rocket-powered planes? Why, sure. France's Courbevoie plant has produced the SO. 9000 *Trident*, first plane using rockets as the principal motor and reactors as auxiliary motors, taking off under its own power. The plane has passed the sound barrier horizontally (almost 900 mph, we're told), and beyond Mach-1 in a dive without operating its propulsion rockets.

Another French plane you'll be hearing more about shortly is the *Baroudeur*, supersonic in a dive, yet can fly off a beach, meadow, farm field; lands on skids extending from its belly.

Here are some new things that excite the imagination: A radio-controlled drone that comes awfully cheap compared with others. It's a high wing monoplane with 6-ft. wingspan, a 1 hp engine turning a 13-in. prop; fuselage is of sheet metal, wings and tail of balsa and nylon; but it makes 60 mph speeds over a 20-mile range, costs one-fifth of the usual tactical drone. Aerolab is the maker.

Then, there's a new three-in-one blind flight instrument by Lear. It gives a picture of a plane diving, climbing, banking and heading on an azimuth scale. All on a 3-in. face. Synchros in the device get signals from directional and vertical gyros in the remotely located amplifier chassis. Whole affair weighs but 27 lb.

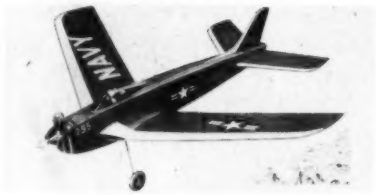
The *transponder* is the name of a new less-than-10-lb. identification beacon for lightplanes. Radio Receptor of Brooklyn makes it. When interrogated by a radar signal from a fixed base, it automatically responds with a signal identifying itself and helping fix location.

Transport teleprinters? They're coming. At least five airlines will have them on North Atlantic hops. Printers will automatically transmit weather, general advisory information. This means the airborne newspaper—hey, maybe they should call it the North Atlantic *Bugle*—isn't too far off. Big objective of the plane printer is to relieve flight crews from using over-crowded radiophone channels for such information.

The Orchids-to-You-Department: CAA's Office of Aviation Information for the swell series of "profiles"—about CAA workers doing interesting or unusual jobs—now in its eighth edition. If you're interested, why not write CAA, Washington 25, D.C., for a set of the series? (*Continued on page* 43)

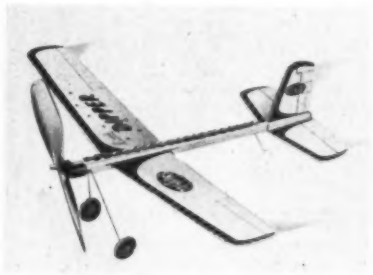
TRADE SHOW

MONTHLY REVIEW OF NEW PRODUCTS, OTHER INTERESTING ITEMS WORTH ATTENTION



▸ *Arrowjet 24:* Combination free flight and U-control model by Top Flite Models, Inc., Chicago, is Half-A powered companion to firm's well known Rascal 27. Featured is "no mistake" method of assembly from pre-fabricated parts that require no tools. Just cement, sand and paint. $2.50.

▸ *Super Sabre:* Scale type U-control model for engines of .035 to .074 displacement was designed for Scientific Model Airplane Co., 113 Monroe St., Newark 5, N.J. by Walter Musciano. Carved fuselage, shaped wing, die-cut tail, formed gear. Has tricycle gear. Lists for $1.95.



▸ *Little Dipper:* Testor Chemical Co. of Rockford, Ill. puts out this ready-to-fly 49c rise-off-ground rubber-powered model. Span, 18 in. Features plastic propeller, thrust bearing that holds landing gear in place, adjustable wing position. Wing has dihedral, parts color printed.

▸ *Giant Cub RC:* Huge 71-in. Piper Cub by Berkeley Model Supplies, West Hempstead, N.Y., weighs 4½ lb., has 700 sq. in. wing area. For engines of .15 to .25 cu. in. dis-

placement, it is intended for rudder-only, with trim, motor control optional. Shock-mounted wing panels detach. Kit is pre-fabricated with plans by Bill Dean. Ideal scale subject, it sells for $8.95.

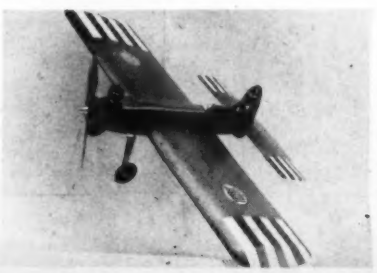
▸ *Spitfire's Tri-Pacer:* Unique flier is brainchild of famed contest modeler Lew Mahieu. Made entirely of balsa and metal, model is controlled by short stick and single line,

used to guide direction of flight. Span is 17 in. Complete with Spitzy .045 engine, single-line control, tricycle gear, sells for $6.95. Spitfire Products Co., P.O. Box 168, Compton, Calif.

▸ *Veco Tug:* Designed expressly for radio control and electric motor drive, the Veco Tugboat 35, made by Henry Engineering Co., Burbank, Calif., is 35 in. long with an

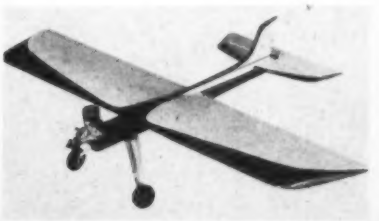
8-in. beam. Hull, deckhouse, parts of Styrene plastic. Flexible, will not crack through vacuum forming. All metal parts, as whistle, searchlight, rudder, bell, etc. Price is $24.95. A multi-channel ideal.

▸ *All American:* Business-like stunter for .19 to .29 engines is made by deBolt Model Engineering Co., Williamsville, N.Y. Span is 36 in.; area, 300 sq. in. Asymmetrical stability gives reliable performance on small engines. Pre-fabricated parts, formed metal gear. Sells for $4.95.



▸ *Sea Gloss:* Companion item to Aero Gloss for planes is new Pactra Chemical Co. (1213 N. Highland Ave., Los Angeles 38, Calif.) marine paint. Compounded for waterproof, high gloss qualities, on wood, plastic or metal. Dries quickly, easy to apply. Five colors. 25c the jar.

▸ *Vengeance:* By laying profile flat, F & B Model Aircraft Co., Denver, Colo., made desirable upright mounting of engine easy in this combination combat, stunt, sport U-control model for A, B, C Class engines. Kit includes hardware, wheels, bellcrank, formed gear. Retail: $2.95.



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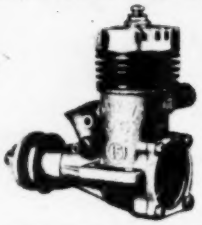

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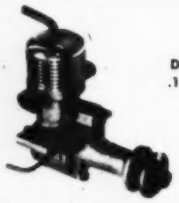

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To World Engines:
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Signed Bruce Stuller, Ace Model Shop
Pasadena 8, California

[illegible]

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DIESEL ENGINES	
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Webra Record .09 Bm. & fl.	8.85
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P. G. F. CHINN

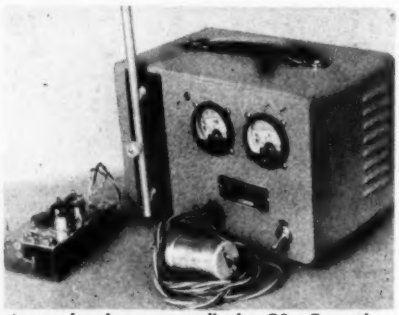
FOREIGN NOTES

A monthly world-wide round-up of technical developments, designs, significant industrial products.

by P. G. F. CHINN

Mexican Nationals

Over 100 modelers from all parts of Mexico competed in the 1955 Nationals held on the dried up lake of Texcoco near Mexico City. Phil Guilmant, now with the Mexico City club and formerly a well known modeler in Britain, reports that American kit designs were well to the fore and won two of the four power events, while a Jasco Nordic won the towline glider event. The controlline contests drew a total entry of over 50 models and a high standard of flying. Rubber was not popular, but radio control was quite well supported, albeit somewhat handicapped by dust storms which prevailed during the three-day meet.



Impressive Japanese radio by OS. Two-tube, single-tube receivers. That X-mitter intriguing.

Japan Enters Commercial RC Field

As predicted in the August Foreign Notes, the Japanese model industry is preparing to extend its activities to the manufacture of radio control components. The neat looking transmitter illustrated is a foretaste of what may be expected from this quarter and is a product of the Ogawa Model Manufacturing Co., producers of the well known OS engines. Several types of receivers (both single and two-tube) and escapements have been produced. One of the receivers is enclosed in a transparent Plexiglas type case; another is contained in a molded case with upright tube similar to the ECC receiver. We will report on the technical details as soon as these are known to be finalized for production models.

British Frog Pioneer, prefab of magnesium aluminum. No glue. Span, 38 in.; .09; 15 oz.

Australian Sabre .35

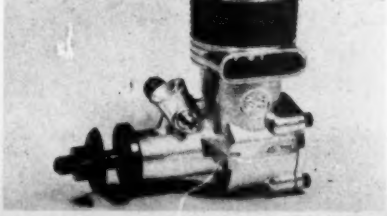
The number of times that an overseas manufacturer has produced a glow plug motor to beat its American equivalent on all counts can be counted on one hand and still leave enough fingers to play a flute. We are not going to suggest that Gordon Burford's new Sabre .35 is better than anyone else's, but it does have, in addition to performance, one or two features of practical merit.

The most important of these concerns the cylinder. This is properly hardened, ground and lapped to cope with the dusty flying conditions so frequently experienced in Australia, which result in a very short life for stock soft cylinders. We checked on this and there is no doubt that the Sabre cylinder surface is really hard.

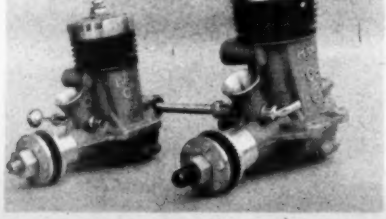
Also aimed at prolonging engine life is the design of the main casting, a particularly rugged component in 12 per cent silicon-content aluminum alloy of 17 tons' tensile strength. Die-casting here is first rate. The motor has a bushed main bearing and, in common with current U.S. trends, the shaft is particularly free running. The shaft is hardened and tempered, has a rectangular valve port and is counterbalanced for rotating, and part of the reciprocating, weight.

The motor has a bore and stroke of .800 x .700 in., giving a displacement of .352 cu. in., and weighs 7.4 oz.

Rugged Sabre .35 from Australia. Well made, as hardened cylinder for the dusty conditions.



Seen with well known Max-1 .29 is new Japanese OS Max-1 .15 for International Class.



Noted Czech jet exponent, Josef Sladky, all metal jet job which he will fly against Russia.

British Nationals Results

Despite earlier impressions, gained from poor support of some events, that the number of entries at the 1955 British Nationals was not high, it appears in the final reckoning that nearly 600 modelers took part. Last month we mentioned the high performance of models in Class A (.15 cu. in.) team racing, but the Nationals showed that Class B standards have not slackened. In the final of this event, J. McNess covered the 10 miles in 7:09, an average of 83.91 mph, including pit-stops. He used a McCoy .29 motor. Second man was only 15 secs behind.

In the Thurston Cup for towline gliders, Bob Gosling, veteran glider exponent who directed event, returned breathless to tell us of last flight victory by D. Painter who scored a third maximum in the closing minutes of the contest after losing model. In the Model Aircraft Trophy (rubber) event, five contestants scored triple maximums and the fourth flight fly-off produced 9:12 from the winner, Jack North. Best speed performance was from Davenport who returned 146.2 in Class III (.60 cu. in.), some 12 mph below this contestant's previous best figure (Carter built motor based on Dooling).

Other winners included R. Edmonds (Class A team race); R. Monks (PAA-Load International .15 Class); P. G. Russell (Gold CL stunt trophy and jet speed event); A. McDonald (SMAE Trophy for RC); K. Rowsell (Sir John Shelley Cup for FF gas); R. Swinden (Bowden Trophy for FF precision); A. W. Evans (scale FF gas); H. Boys (Taplin Trophy for RC); F. C. Smith (Lady Shelley Cup, tailless); L. P. Wright (.15 cu. in. speed) and D. Powell (.30 cu. in. speed). The two RC events were flown under the revised SMAE rules in which bonus points are awarded to contestants using only single-channel gear. Single-channel jobs won both events. Some multi-channel exponents considered this rule too heavily against them.

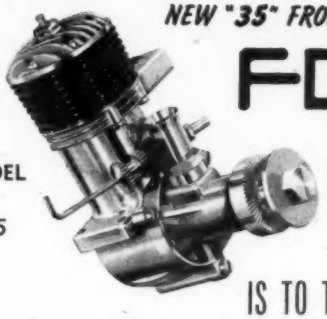
(*Continued on Page 43*)

Mexican models beautifully built, finished. Jose Calderon, C job, seen Mexican National.

Another Blessed Event!

NEW "35" FRONT ROTARY VALVE ENGINE BY

FORSTER



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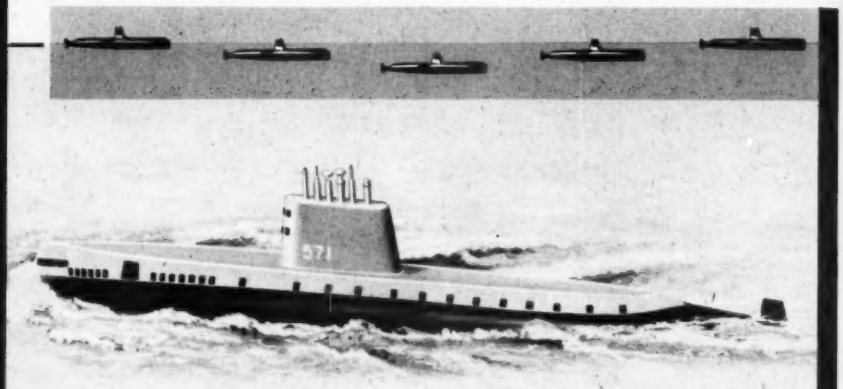

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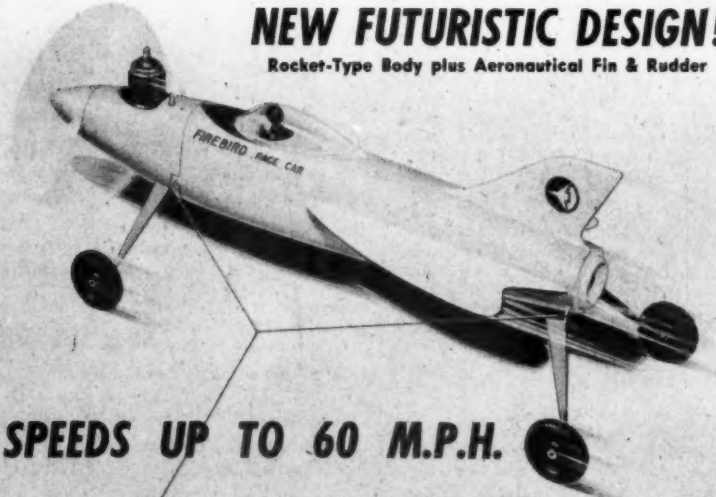

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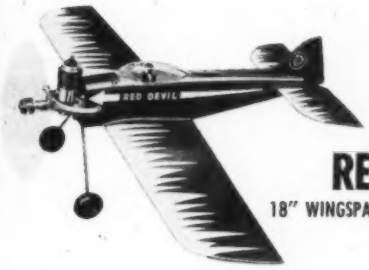

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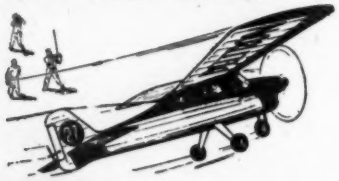

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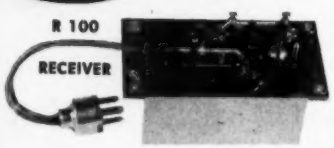

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Paddy's Wagon

(*Continued from page* 19)

platform (F17) and the lower DT wire.

Cement the landing gear assembly together, sandwiching the wire and former F18 between the two F19 formers. Bolt the engine directly to the firewall, then join this assembly to the fuselage nose. When dry, remove the engine and reinforce the attachment with gauze strips. Cover the entire fuselage with colored tissue. Cement the "eye-dropper" fuel tank to the left of the fuselage nose and again strengthen with gauze. Secure the wheel by soldering a small washer to the axle end.

If an .049 Thermal Hopper is used, the installation is similar except that the lower portion of the pylon must be trimmed to clear the air intake, and modified F18 and F19 formers used (see plan). Also, cut a 1 in. sq. hole in the bottom (F14) for access to the air intake.

Wing and stabilizer are built in the normal fashion for polyhedral wings and built-up stabs. Pin the wing leading edge and pre-notched trailing edge to the plan, then cement all except the thicker dihedral break ribs in place. Put in the dihedral (1 in. inner and 3½ in. outer), adding the dihedral braces and the remaining ribs. Now add the upper spar and cover the leading edge with four pieces of 1/32 sheet. Cement the wing tip blocks in place, shape them to the section shown and then carefully sand the entire assembly. Cover (including the sheeting) with wet silk, taking good care that the covering adheres firmly to the undercambered bottom of each rib. Stab construction is similar. Use clear Butyrate dope, giving six coats to the fuselage, four to the wing and two to the stab. Use thinned dope on wing and tail.

To fly, always use a dethermalizer—in the hope of preventing fly-away. Incidence has already been built into the wing mount, so prepare for that first flip by checking the balance point (see plan).

When balanced correctly, the ship should glide straight ahead with a moderate stall. Gradually dampen out this tendency by tilting the left stab tip (looking from rear) slightly upward, so that a left circling glide may be induced. Avoid using the rudder for glide or power adjustments.

The engine setting should be neutral and a 6 x 3 in. prop is about right for most powerplants. Under power, a gentle right turn is normal, followed by a wide left turn on the glide.

In conclusion, I should like to thank both Tom Mormino and Frank Pisano, who built some of the models, and also Bud Weiler, who took the photographs of the original ship.

MAN at Work

(*Continued from page* 5)

read an aviation magazine, yet one of the science magazines publishes (of all places!) plans for making a homemade airplane and the designer got 700 letters in two weeks! In fact, there's a magazine circulated among members of a home-built airplane association called the Experimenter and there's another called Antique Airplane News. The public isn't interested in aviation, say publishers and booksellers, but the really good aviation articles pop up in the national magazines whose circulations are in the millions. Civil aviation favors the businessman, or company-owned airplane. Sport flying is being eclipsed. In our own field, MAN is unique for its model-planes-only policy. If the American boy is incapable of doing things for himself, or too lazy to "build an airplane," if aviation, or model aviation, doesn't justify faith, we might just as well take up trick photography. Maybe it is we who are lazy. Maybe we lack the imagination, the wisdom, and the resourceful-

ness to make the vision actuality.

* * *

▸ "Read with interest data on events at '54 Nationals and the findings that free flight is still the most popular event," writes Hal Lorimer, Brockville, Canada. "You state that this is a 'shocker'—but not to us in this area or country. All the modelers in the Montreal, Kingston, Brockville area have been claiming this for years. Same can be said of northern New York State, Watertown, etc. All the meets around here are devoted exclusively to free flight.

"In fact," Lorimer winds up, "the U-Control showing at the Ottawa Canadian Nationals last year was so bad that they are being thrown out entirely this year. Frankly, our gang is fed up with model magazines claiming that free flight is gone because of lack of flying fields. Maybe the editors live in New York?"

Hal, ol' boy, when it comes to free flight, New York has been doing a Custer's last stand for ten years. Sure, we know about the many fields existing elsewhere, away from big cities. Unfortunately, and despite the exciting statistics from last year's Nats, free flight is not king pin, or anywhere near the top of the popularity scale where non-contest-going modelers are concerned, and they are numbered in seven figures. Hobby shop stocks eloquently bear this out. But MAN at Work cannot disagree with your statement that free flight will always be with us, because of the fascination of having a model free, not controlled by wires and radio.

* * *

▸ If you have ever cussed out vague directions, you'll appreciate these comments found in a kit that came to light when Ocie Randall (Fresno Model News) cleaned out his garage. Since the kit is 20 years old we assume that Ocie uses the garage for a workshop. Clean up every 20 years is par for the course. The directions went like this, swears Ocie: "Test; please look into wing wing back wing and stand wing etc. and propeller. And drop in oil at coshon ball of propeller. Flying: first see through from forward and get it mended all out of order. Next time opposite direction for wind blow at open ground 40-60 M long line. And then start itself from on the ground. Attention: please paint at combine point without fail because of motionless combine point. Please according to elucidation method of turning every bamboo." Do you suppose the syndicate that marketed this gem concluded we didn't like to build flying models?

* * *

▸ Quoting club papers sometimes backfires. Harley W. Elmore nails an item we'd picked up from Hawksquawk of Wichita. This had to do with the ducky flying site provided by the city of Denver and clubs thereabout. Says Harley: "The Aurora Propbusters, the only AMA club in the Denver area, has been the

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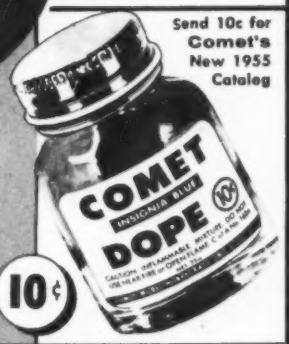

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only club in the past three years. We have had to obtain and lease our own flying sites. City of Denver spent a lot of money on a beautiful controlline site at the Stapelton Airport. Since constructing it, the only thing they have done was to remove the original blacktop surface when it began to deteriorate. This left three circles of fine sand which gets in engines—and in our hair. East Denver modelers tried their own maintenance but gave up in disgust. The site is rarely used now."

The Aurora Propbusters now are sponsored by the Exchange Club of Denver. New name will be forthcoming. "Hope we haven't bent your ear too much," Harley signs off. Quite all right, pal, provided Denver refinishes that sand pit.

* * *

▸ The Can't-Win Department is booming this month. This time it's George Moir. George, incidentally, won the Sad Sack award at the Mirror Meet for the worst luck of the contest. He was busy showing Duke Fox how the South Jersey boys knock 'em over in team when some guy flew in front of George's hot '55 Rambler. The Rambler went right through the other ship. After 99½ laps. Tie that! George's article on re-working a Fox .29, acclaimed an all-time classic in the hop-up department brought mysterious complaints that some reworked Foxes were no foxier than they had been before undergoing machine shop magic. Trouble was that Fox had changed porting slightly on some '55's. But it's a story with a happy ending. Duke has cooperated with Moir in George's idea to market hopped-up Foxes. Known as the Moir Special Foxes, these .29's and .35's can be had from Moir for $20.95.

"I can just see a B free flight getting the wings swept back on the way up with one of these M-S Foxes up front and really singing," says George. Editor's Note—Wheeee!

* * *

▸ Speaking of free flight, when, oh when, will they up the power loadings? We'll be creamed like one of those B jobs George talks about after these comments. But it seems to us free flight is in a rut. Not only in a rut, but ceasing to prove anything, and no more scientific than a combat job. Free flights have to go in a groove. Don't think so? How about a two-flight novelty event? You make one flight turning right under power; the second, turning left. That should separate the men from the boys! Seriously, with power to burn, design is degenerated into a rule of thumb business of proportions — everybody knows the proportions. The skill is in judgment and ability to adjust. Not the airplane. Seems to us that an .09 Cumulus could catch thermals. After all, free flight just exists so you can see that dethermalizer work, so this should satisfy the status quo boys. With less power, drag, shape and other aeronautical matters would again become important. Or are we really lazy, as the man said?

* * *

▸ "Interested in your remarks that modern free flight designers don't know how to design any more because they don't have to, and amen, brother," declares Joe Wagner, Kenhi, currently producing Gilliam's efficient Civy Boy.

"This was one reason why I suggested that insane 'powered free flight' deal a few months ago. The suggestion was for a new event, based on duration with no time limit, no engine categories, and no restrictions other than that the model must take off, not be controlled from the ground by any means, make the entire flight within sight of the timer, and have an entire run of at least one minute.

"While the local yokels have not hesitated to recommend psychiatric help, a bunch of the more bored have consented to give it a try after the Nats. It seems to me that design of a ship for an event like this would present more of a challenge than a lot of us have had lately."

Joe, creator of the delightful Dakota bipe, also comments on this column's contention that the biggest interest among youthful modelers is in scale. Says Joe, "A few weeks ago we had a Boy Scout troop visit the plant, about 40 boys 12 to 14 years old. None of the boys was a model builder, except for plastics. It occurs to me that the main reason the plastic stuff has been selling so well is that it consists entirely of scale models—maybe a line of balsa solid models like the old Maircraft line would do nearly as well if as attractively packaged as the plastic kits and sold through as many outlets." Seems to us, Joe, the trade—that is, dealer and distributor—would have to have faith in such

(*Continued on page* 42)

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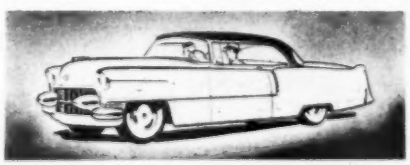
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▸ A featured, valuable attraction at the annual Los Angeles Hobby Show, and this is a really *big* show, is the flying demonstration put on by the FAST Club, developers of team racing and other realistic stunts. The FAST boys are masters at group flying. Will never forget the fascinating exhibition they put on at night in a hangar during a California Nationals. As many as six Goodyear models, all Half-A powered, were simultaneously flown on short lines and rather rich power. These terrific little airplanes would stay right out there, slowly flying, never coming in, just going 'round and 'round, one after the other. Space imposed the conditions. So at the Hobby Show, FAST had a display both about 30 ft. long with 30 models consisting of team and Navy Carrier jobs, all Half-A. Flying took place in an activity cage 50 ft. square and 25 ft. high. Allowing for room, safety, this required 17 ft. lines. Les McBrayer, suppose you tell us about it.

"Our demonstrations at each of the 60 shows put on during the Hobby Show were of two different types," explains Les. "First, we would have a team race using three to five models. Take-off, form-up for a start, then race 45 laps. This type of flying has been done for five years at the Hobby Show.

"Our second demonstration was one of making landings and take-offs from the USS Forrestal Jr. This model of the real carrier was 18 ft. long, 5 ft. wide and 18 in. high. The deck was straight and not curved. There were five arresting lines spaced 18 in. from the stern and then 12 in. apart from there forward.

"Models mostly were Grumman Hellcats with about 90 sq. in. of wing and weighing 12 to 14 oz. The Half-A engines had complete motor control systems à la Jim Walker's Firebee system. We would start four models and place them on the deck 12 in. back from the front of the deck and take off as quickly as possible. After all four models had made several laps, we would land them one at a time.

"Found it best to use three different centers when flying in the cage," continues Les. "We had a normal 3 ft. flying center circle, a marked spot lined up with the deck where we would stand for landings and a marked spot lined up with the front of the deck for take-offs. This wasn't too difficult and permitted the straight deck."

* * *

▸ Aviation book and pix fans, try Aeroplane Photo Supply, Box 195, Toronto, Canada . . . Started by seven GI's in May this year, the Border-Liners Hobby Club (Richard M. Valentine, M. Sgt., USAF, Box 369, Laredo AFB, Tex.) now has 17 personnel from rank of Captain to Airman Second Class. The base constructed a 200 ft. controlline circle and club is putting up fence. On Air Forces Day, club demonstration held one third of the open house crowd for a whole flying period—hit of the show! Sunday flying at the club. Civilians invited but can't use club or facilities, say regulations. Correspondence invited other clubs in South or Central Texas . . . Can you help USAF Maj. Jimmy E. Wilkinson, 305 E. Kennedy St., Syracuse 5, N.Y. gather a year's RC equipment to keep him company in a remote Alaska base? He's looking for two Wasp Super Twins, 65's ignition, offers "hard cash" . . . After two years of being shuttled from park to park and finally being banned from all the parks, the Waukesha Wingmen licked their flying site problem. City Council authorized the use of a city-owned property, appropriated $1,200 to grade and plant the area. Any group interested in a résumé of plan of attack, write Bill Deffner c/o The Hobby Horse, 839 Gaspar St., Waukesha, Wis. . . . Goose Greasers Aero Club, 30 members (Priesly Johnson, 221 Monument Ave., Wyoming, Pa.) located Wilkes Barre, flying every Sunday Kirby Park, wants members . . . Pittsburgh area modelers who would stir things up, contact Roy Biddle, RD 1, Baden, Pa. Says activities weak but facilities available and let's go . . . Monogram's Cadillac contest pulled over 50,000 entries . . . Thunderbirds (Krine Laffler, 53 Carlton Pl., Passaic, N.J.) sponsors FAI gas team challenge meet September 18. Teams represent groups, areas or states. Individual fliers phone Krine, Prescott 9-0804 . . . Inglewood Flightmasters (California) have color movies their scale contests, will swap-loan with other clubs having movies . . . When is the NAA going to come up with a Director for the AMA?

For the RC Fan

(*Continued from page 26*)

crash. To save weight, the batteries are soldered into the circuit in the Pac; hence, it may be necessary to build and equip a spare Pac.

For this reason construction is simple. The two lengthwise joints should be reinforced with pinked tape. Make the plug leads a few inches too long to prevent failure at the plug connections through handling and displacement. Use only one rubber band at each dowel to prevent destructive rebound smack.

In the fuselage, the relay is put in a balsa box and then surrounded by foam rubber, as there is little structure to absorb engine vibration. Back up escapement and plug receptacles with 1/16 plywood. If a kit such as the Kenhi Beaver or the Veco Comanche is used, the aircraft will have better maneuverability with ordinary dihedral of about 7° instead of polyhedral. The diagram and photo show installation of the Pac, a North American Receiver, and a Neomatic Relay in a Comanche. END

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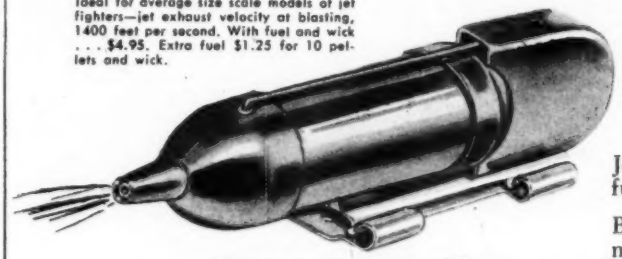

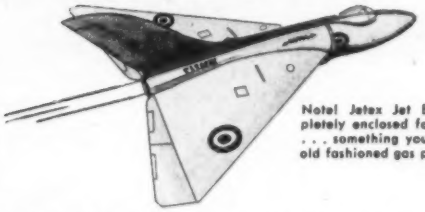

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Flash News

(*Continued from page 32*)

What Washington aviation writers are talking about: GE's upped output of J73's, the 9,000 lb. thrust jet engine . . . Canada's development of a silicone lube that can take temperatures to 400° F . . . AF's measurements of the atmosphere 100 miles up in preparation for regular flights by both manned and unmanned craft "soon" . . . The strange figures of: Air National Guard with 60,800 men and 2,025 planes; Air Reserve with 260,727 men and 674 planes . . . Civil Aeronautics Club (employees of CAA and CAB) flying round-trip to Europe for $260 each by chartering a DC-6C from the Flying Tiger Line.

Foreign Notes

(*Continued from page* 35)

Okinawa Half-A's Are Not Pacific

Maybe this is not strictly a "foreign" note, but, on Okinawa, Half-A speed jobs are clocking over 90 mph, according to Preston L. Husted. Karl William Caldwell was officially timed in contest at 93.6. Engine: Atwood Signature. Fuel: "original." One reason advanced for these unusually high standards of performance is the climate: "horrible for people but good for racing mills."

Italy: Super-Tigre .19 Diesel

Above the .15 cu. in. sizes, European Diesels tend to jump to 3.5 to 5.0 cc (.21 to .30 cu. in.) displacement, which means that they are then outside the American Class A. The Italian *Micromeccanica Saturno* concern, however, have lately introduced a 3.207 cc Diesel which, at .196 cu. in., just fits nicely into the Class A displacement maximum. This is the Super-Type G.27. Claimed to deliver over .3 bhp at 14,000 rpm, the engine is of the shaft valve type, with beam mounts and weighs 6.5 oz.

England: Enter the Metal Airframe

International Model Aircraft, Ltd., one of England's bigger manufacturers, has come up with something quite unexpected: the world's first pre-fabricated free flight kit model with an *all-metal* airframe. This model does not have a scrap of balsa, or of any other wood, in its construction. The only non-metal parts are the rubber wheels, molded plastic cowl, cabin windows and covering. Extruded magnesium alloy strips take the place of balsa for longerons, spacers, spars, etc., and pressed sheet aluminum ribs and formers replace the usual sheet balsa and plywood parts.

Assembly of the model, which is 38 in sport type cabin job called the Pioneer, is simple and quick and involves no riveting or use of special tools. Parts are locked together by means of special clips and require nothing more elaborate than a pair of small nosed pliers. As would be expected, the price of this kit is somewhat higher than an equivalent size conventional kit and lists at £2.19.6. ($8.33) in England.

Cuban Comment

Our correspondent in Havana, Tony Alvarado, tells of the development of Half-A free flight models to meet local conditions. It seems that, in summer, thermals appear to start low down in Cuba. Beginning with 144 sq. in., he has pushed up the wing area to 220 sq. in. (Thermal Hopper motor) and may go to 265, on the theory of obtaining a glider-like power-off performance at the cost of a slight loss of climbing speed. Uncovered airframe weight is held to 4 oz. by paring of non-essential material thicknesses.

E. Germany: Prefers Western Motors

News from Communist East Germany indi-

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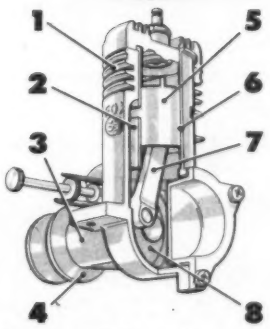

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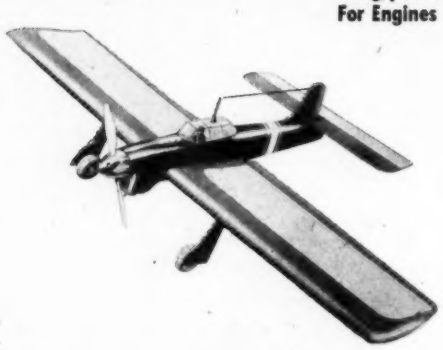

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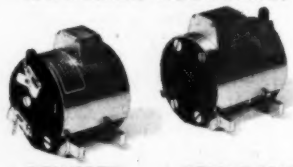

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cates that model builders there do not have a great deal of faith in present domestic products. Claims of higher performance by new Zeiss and MAW engines built there may alter this situation. Meanwhile, in establishing a *Deutsche Demokratische Republik* record of 171 km.-hr. (106 mph), Werner Zorn used a Webra Mach-1 engine imported from the Western zone.

Japan: New Baby Max-1

Just arrived by air from Japan: a new OS engine in the International 2.5 cc (.15 cu. in.) Class. Now going into production, this neat little motor is based on the impressive Max-1 .29 and .35 models. It weighs 3½ oz.

Radio Control News

(*Continued from page 26*)

motor control are obtained.

Fig. 3 gives a three-view layout of the Windjammer by Geoff Pike and the Sky Sedan by H. O'Heffernan, both of England. These excellent drawings by P. G. F. Chinn should provide plenty of thought for new designs, especially if you're interested in endurance flying. The English modelers have sometimes been criticized for being too technical or in spending too much time "on the drawing board." Here are two examples which have paid off. At first glance you may say that there is nothing unusual about either of these two models. But take a closer look; note the wingspan and the *weight less fuel*. Then take a look at the size of the engines and props used, remembering that these models must take off in order to have an official flight. How many RC models have you seen with a 7 ft. wingspan and weighing about 60 oz. ready to fly, being powered with an engine not much larger than a McCoy .049 or a Cub .049 Diesel? It appears that, in looking over these two planes, and remembering comments by Hal deBolt last month, more effort should be placed on construction details for RC planes. Why not an "unload plane, weighing about 2 lb., instead of the usual 3 or 3½ lb., and still maintaining the needed strength after it is loaded with equipment? We thought you'd be interested in these ships and now let's see what comes up in this country.

Kelvin J. Kidd, Box 1369, Christchurch, New Zealand, dropped a bit of news from "down under." The biggest thing in New Zealand is in the radio equipment itself, the majority of sets being modified two-tubers, using two hard tubes, with the relay tube directly operating a gadget known as the Relaytor—right from the tube into the control actuating device. This device pulls in at about 5 ma and works very well on small ships. However, larger ships which would possibly cause a greater pressure on the control surface tend to spiral in, this being attributable to insufficient mechanical force to restore the armature to neutral after keying. Inasmuch as there is quite a bit of interest in this country also on this type of device, work should be concentrated on electro-mechanical design which would enable a relay type of device to operate with as much reliability as the average escapement. Scale ships are very much in evidence and in view of this, ignition engines are practically naming their own price. Up to $15 and $20 for a good Brown Jr., Baby Cyke, Dennymite, etc. Shades of the good old days! Might be interesting for a club to get in touch with Kelvin and go over this problem and make a project out of it.

What could be nicer than the photograph of Dan Johnson of the San Diego Radio Modelers sending out his RC Cruiser? Photo 2 is by E. J. Brown and shows the craft with its electric motor drive and three-channel audio receiver taking a right turn away

(*Continued on page 46*)

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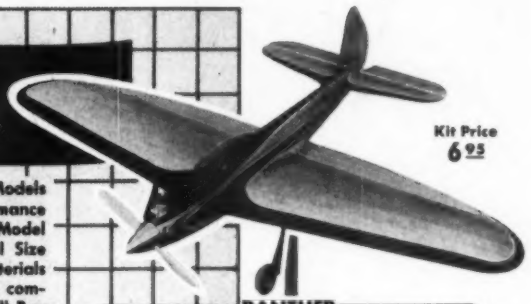

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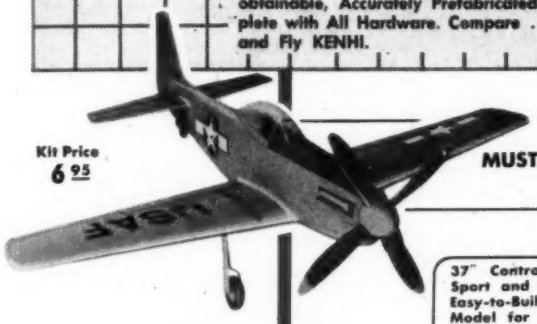

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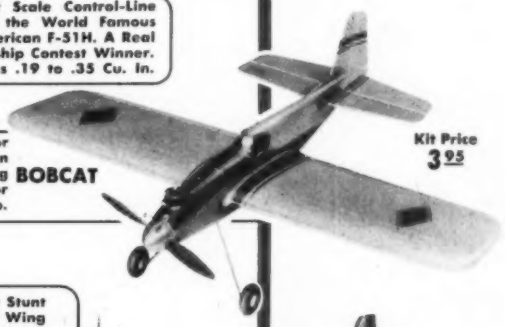

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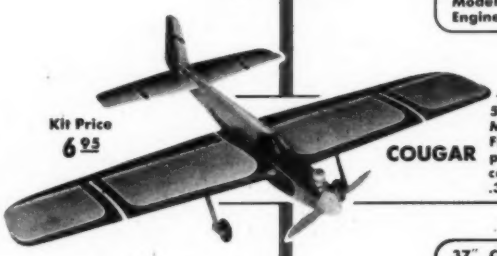

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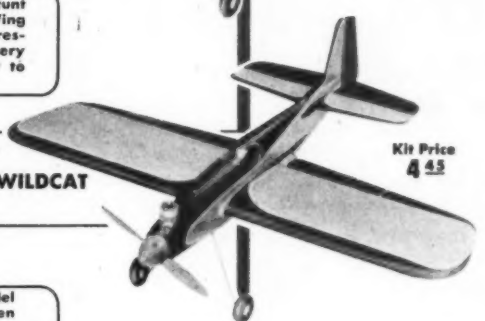

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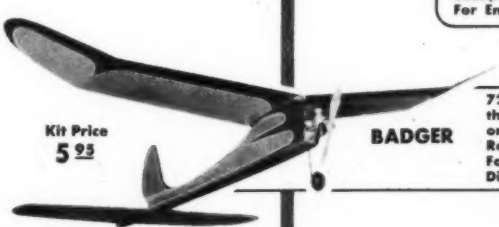

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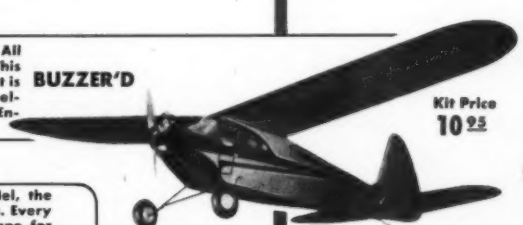

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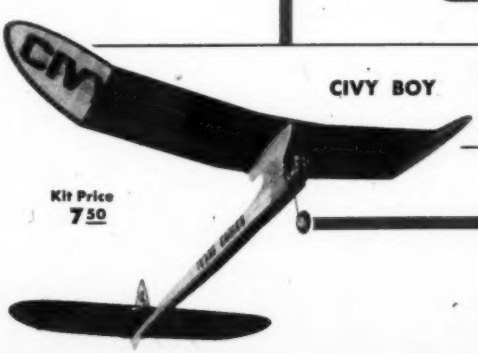

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from the dock. Incidentally, this job uses two electric motors for drive. This is just the kind of model that will welcome the new Babcock Electric Motor Reversing Switch.

NEW ITEMS

By the end of the year, every individual and club should have a fairly good library started. The latest book of interest to the RC fan is the publication by Raytheon Manufacturing Co., 55 Chapel St., Newton, Mass. entitled *Transistor Applications*. Selling for 50c, this is a down-to-earth coverage with how-to-do-it instructions on more than 50 practical circuits, using the CK-722 transistor. While not all items pertain directly to RC work, we think you'll find enough information in this book to keep you going through the coming winter months. Check your local Raytheon distributor for the book and various transistors.

Those of you who are just starting radio control work may wonder where to get some of the rather unusual gadgets and parts. Besides the regular RC supply houses such as ESSCO, Gyro, Control Research, Box 9, Hampton, Va. and Ace Radio Control, Higginsville, Mo., we now have one of the largest radio supply houses in the country entering the field. Lafayette Radio (100 Sixth Ave, New York City; 110 Federal St., Boston, Mass. and 24 Central Ave., Newark, N. J.) offers quite a few items aimed toward the RC field. Refer to Dept. ST-23 and ask for their flier on transistor transformers and circuits. This bulletin gives quite a bit of information on various sub-miniature transformers, circuits, books on transistors and sub-miniature components. These components include sub-miniature tubes at a substantial savings, sub-miniature pots, switches and plug-jack sets. Catalogues 9-54 and 3-55 also give their complete line of radio parts which are needed for general transmitter, receiver and gadget building.

Now available from your local hobby distributor is the new Babcock Electric Motor Speed Control and Sequence Reversing Relay. This appears to be the answer to the RC boat or car fan's prayers; in fact, it can even be used in a plane. Measuring 1½ x 1¾ x 1⅛ in. and weighing but 1½ oz., this self-contained unit provides eight-position control, allowing you to obtain start, stop, reverse and two speed forward. The contacts will handle 10 amps at 6 volts, which is adequate for almost any RC application. Now there is no need to put up with bulky makeshift devices or uncertain and unreliable homemade gadgets to achieve all of these functions when you can get this unit for only $12.95. A set of speed control resistors for all popular size motors is also included and the current-carrying elements of the printed wiring switch are rhodium plated, just like guided missile rotary switches.

A transistor circuit which would work directly into a relay-actuator has been originated by NEWX Products of Union, N. Y. This company is offering a model T700 NEWX escapement, which works directly from the collector circuit of a GE 2N43 or GE 2N45 transistor. This is the first step in this country to produce miniature equipment and at the same time eliminate the "unnecessary" relay. This will cut cost, weight and fussin' time.

CTC, Cambridge Thermionic Corp. of Cambridge, Mass., has come up with a new coil form, specifically designed for printed wiring applications. However, it may also be used in the conventional way. Two sizes, measuring .219 and .285 in. in diameter, are both about ¾ in. long and the slug may be adjusted from either end. They are available with either two, three or four terminal lugs for fastening the coil windings. Inexpensive, they should be available through any radio supply house carrying CTC products. The .219 in. size is model SPC-1 and the .285 in. size is model SPC-2.

The T-craft

(*Continued from page* 10)

forward of cabin as "scaffolding" to locate formers, firewall, etc. Cowl can be of pie sections of 3/16 soft balsa or carved from soft blocks. Dowels aline cowl on firewall.

The original was covered with yellow Skysail, 75 weight. Two coats of thin clear and one coat of Aerogloss, T-Craft yellow did well on the wing and tail. Fuselage had an extra color coat and cowl several more. Numerals and aileron markings were cut-out black paper; a tapered black stripe, with diamond detached head, ran down the center of each side of the fuse.

Motor is mounted with moderate down and right thrust. The balance is placed exactly as shown on fuselage with wing and tail in place. Vents at cowl should be fairly large, say at bottom, sides and top, 3/16 x 1½ in. Leads can be run outside on firewall for booster, using an old ignition cable clip at the glow plug. Put plugs in the tank to allow motor run of 40 seconds to cover starting and to allow 30 seconds in the air.

Try for left circle on power and glide using more or less right thrust if needed Raise front of the wing experimentally with 1/32 sheets of balsa until a *slight* galloping stall is apparent in glide and then remove a sheet or so to level the glide to its minimum sinking speed.

Contest Calendar

SEPTEMBER

3—*Morgan City, La.:* Class AA Louisiana Shrimp Festival Model Airplane Meet for CL, CLS, CLC. Elmer J. Griffin, C.D., 814 Third St., Morgan City, La.

3 & 4—*Dallas, Tex.:* Class AAA Southwest Model Airplane Championships for all controlline events, FFG, PL. Maurice Teter, C.D., 2025 Abrams Rd., Dallas, Tex.

4—*Lancaster, O.:* Class AA Lancaster Skylarks' Club Meet for CL, CLC, CLS. Paul McGrew, C.D., 331 E. Main St., Lancaster, O.

4—*Inglewood, Calif.:* Skywolves' Record Trials for CL. Don C. Crystal, C.D., 805 E. Palmer Ave., Compton, Calif.

4—*Goodland, Kan.:* Class AA Northwest Kansas Gashoppers' Meet for FFG, RC. Kenneth Armstrong, C.D., Goodland, Kan.

4—*Bloomington, Ind.:* Class AA Annual Bloomington Model Plane Championships for FFG, RC, CIC, CLS. Robert R. Davis, C.D., 218 N. Walnut, Bloomington, Ind.

4—*Washington, D. C.:* Class AA Washington Area model meet for CLS, CLC, TR, FFG, RC. Bob Kirwan. C.D., 4305 16th St. S., Apt. 2, Arlington 4, Va. Pending.

4—*Boise, Idaho:* Class AA Boise Model Airplane Contest for OHLG, TLG, OR, FFG, RC, CL, CLS, CLC, scale. Richard A. Burrell & Vern Clements, C.D.'s, Box 608, Caldwell, Idaho. Pending.

4—*Wilmington, N. C.:* Class AA SENC Land Model Plane Meet for CLS, CLC, RC. W. M. Peck, Jr., C.D., 2409½ Country Club Rd., Wilmington, N. C.

4-5—*Monticello, Minn.:* Class AAA 7th Upper Midwest PAA-Load Meet for PL, RC, Jetex. Walt Billett, C.D., 2541 Nicollet Ave., Minneapolis, Minn.

(*Continued on page* 48)

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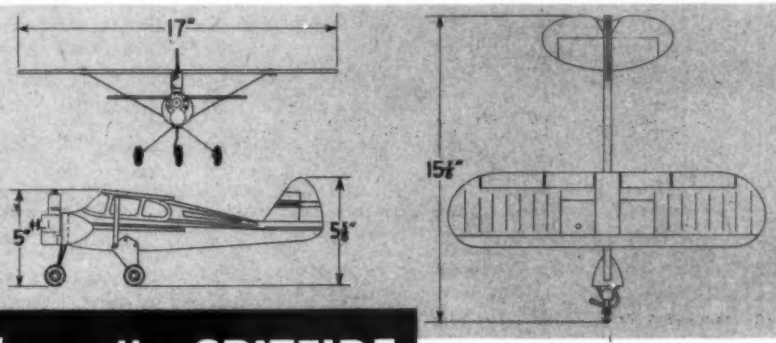

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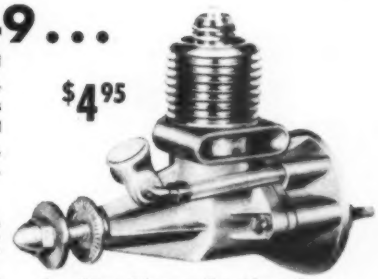

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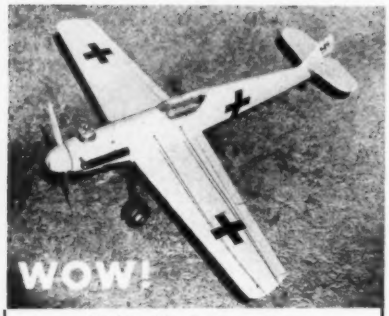

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5—*Far Hills, N. J.:* Class AA Bedminster-Far Hills Lions Club Model Air Meet for CL, CLS, beauty, TR, CLC. C. Marsden Vanderwaart, C.D., Lamington Rd., Bedminster, N. J.

10—*El Paso, Tex.:* Record Trials for FFG, OR, TLG, OHLG. Fred Lind, C.D., 1610 E. Yardell, El Paso, Tex.

11—*Ft. Worth, Tex.:* Cowtown Sahibs' Record Trials for all outdoor classes. Ralph Tenny, C.D., 608 W. Prairie, Arlington, Tex.

11—*Hartford, Conn.:* Class AA Greater Hartford Autumn Team Racing Meet. Robert H. Haines, C.D., 75 Evergreen Ave., Hartford, Conn.

11—*Inglewood, Calif.:* Class AA Skywolves' Team Race. Don C. Crystal, C.D., 805 E. Palmer Ave., Compton, Calif.

11—*Plainview, L. I., N. Y.:* Class AA New York Aeronuts' Model Airplane Meet for FFG, OHLG, RC. Murray Quitko, C.D., 410 E. 57th St., Brooklyn 3, N. Y.

11—*Baltimore, Md.:* Class AAA 3rd Annual Friendship Controlline Olympics for CL, CLS, NC, CLC, CLFS, beauty, TR. F. G. Stroh III, C.D., RFD 6, Pasadena, Md.

11—*Boston, Mass.:* Class AA New England Wakefield Group Sweepstakes for FAI Power, Wakefield, ½A FFG, OHLG. Lee Renaud, C.D., 300 Hyde Park Ave., Boston, Mass.

11—*Sacramento, Calif.:* Class AA Oakland Cloud Dusters' Third Annual ½A Free Flight Team Contest. Joe Bilgri, C.D., 256½ Locust St., San Jose, Calif.

11—*Cleveland, O.:* Class A 1st Annual Radio Control Event. Entry is restricted to Cuyahoga County. John W. Grega, C.D., 355 Grand Blvd., Bedford, O.

11—*Bakersfield, Calif.:* Bakersfield Record Trials for FFG. Francis Stewart, C.D., 900 21st St., Bakersfield, Calif.

11—*Gloversville, N. Y.:* Class AA 1st Annual Fulton County Model Airplane Championships for CLS, CLC, FFG, RC, beauty-scale. Robert L. Elliott, C.D., 48 Curtis Terr., Pittsfield, Mass.

18—*Perth Amboy, N. J.:* Class AAA Flying Olympics for CLS, CLC, CL, beauty. John P. Gyorfi, C.D., 115 Watson Ave., Woodbridge, N. J.

18—*Buffalo, N. Y.:* Flying Bisons' 3rd Annual Meet. Pending.

18—*Tulsa, Okla.:* Class AAA 2nd Annual Tulsa Glue Dobbers' Southwest Nordic Championship Contest. Willard H. Kehr, C.D., 4940 N. Johnstown, Tulsa, Okla.

18—*West Haven, Conn.:* Class AAA Southern New England Controlline Contest for CL, CLS, CLC, CLFS. Armand D. Mahieu, C.D., 181 Maplewood Ave., Milford, Conn.

18—*Los Alamitos, Calif.:* Class AA 7th Annual Long Beach Thunderbugs' Free Flight Meet for FFG. F. L. Swaney, C.D., 527 E. 55th St., Long Beach, Calif.

24—*Bayville, L. I., N. Y.:* Class AAA Screamin' Demons' 3rd Annual Long Island Sound Hydro Championships for PL, FFG, RC, twin pontoon & flying boat (all ROW). Donald J. McGovern, C.D., 81-53 242nd St., Bellerose, N. Y.

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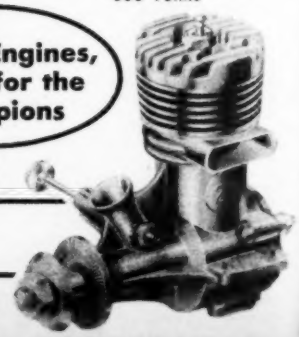

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OPEN STUNT

*1st Place • Bob Palmer of Burbank, Calif.
Plane • Veco Thunderbird
Power • Veco .35 Engine
362 Points

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1st Place • 11 Yr. Old Eddie May of Durham, North Carolina.
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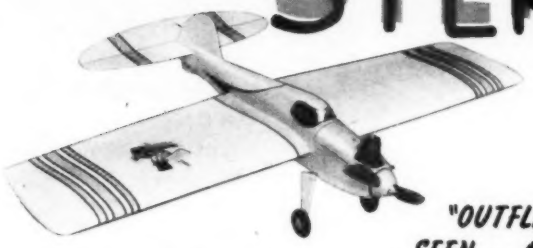

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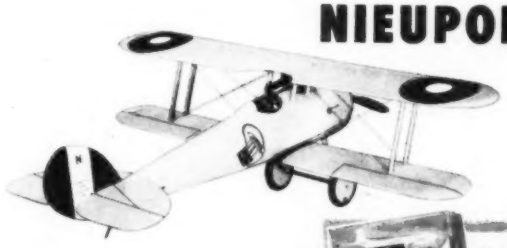

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Sterling models

24—*Union, N. J.:* Class AA 1st Annual Union Model Airplane Contest for CL, CLS, TR, NC, beauty, CLC. Adam J. Karp, C.D., 625 18th Ave., Newark, N. J.

25—*Fresno, Calif.:* Fresno Gas Model Record Trials for FFG. Jim Scheidt, C.D., 2225 Brown Ave., Fresno, Calif.

25—*St. Clair Shores, Mich.:* Class AA St. Clair Shores Modelers' Proto Speed and Team Racing Meet. Howard Lewis, C.D., 21520 California, St. Clair Shores, Mich.

25—*Johnsville, Pa.:* Class AAA Bucks County Federation of Model Airplane Clubs Invitational Contest. Anthony J. Becker, Jr., C.D., 2215 Griffith St., Philadelphia 15, Pa.

25—*Wichita, Kan.:* Class AA "Y" Wichihawks' 3rd Annual Contest for FFG, OR, TLG, OHLG, RC. Jean P. Valle, C.D., 3891 E. Bruce, Wichita 10, Kan.

25—*Albuquerque, N. M.:* Class AA 3rd Annual SWAT Free Flight Contest for FFG, TLG, OHLG, RC. James P. Taylor, C.D., 3190 W. Sandia Dr., Sandia Base, Albuquerque, N. M.

OCTOBER

2—*Harvey, Ill.:* Class A RC³ Championship Flying Meet for RC. Entry is restricted to members of the Radio Control Club of Chicago. R. E. Webb, C.D., 1303 W. 79th St., Chicago.

2—*Inglewood, Calif.:* Skywolves' Record Trials for CL. Don C. Crystal, C.D., 805 E. Palmer Ave., Compton, Calif.

2—*Wichita, Kan.:* Wichihawks' Record Trials for all outdoor classes except ROW. Jean P. Valle, C.D., 3891 E. Bruce, Wichita, Kan.

9—*Ft. Worth, Tex.:* Cowtown Sahibs' Record Trials for all outdoor classes. Ralph Tenny, C.D., 608 W. Prairie, Arlington, Tex.

9—*Arcadia, Calif.:* Class AA Team Racing Contest. Les McBrayer, C.D., 1238½ So. 2nd St., Alhambra, Calif.

9—*Boston, Mass.:* Class AA Boston Model Rally for FFG, OR, TLG, OHLG. Lee Renaud, C.D., 330 Hyde Park Ave., Boston, Mass.

16—*Santa Ynez, Calif.:* Class AA 1st Annual FAI Team Meet for FAI Power. Wm. J. Kaupp, Jr., C.D., 2733 Verde Vista Dr., Santa Barbara, Calif.

Stop that Engine Now

(*Continued from page 31*)

is fine) and carefully sand or file off all excess solder. Using the oil and garnet paper method again, slide this plunger back and forth in a spare piece of ⅛ in. OD tubing until it's smooth and slides freely in the cut-off body. A really tight seal is not necessary; it's far more important that the plunger should be a free fit in the cut-off.

7. When you're sure the plunger will not bind in the cut-off body, make the spring retainer. This is a piece of 3/32 in. OD tubing about 1/32 in. long soldered inside the cut-off body at the base of the slot.

8. Clamp a piece of .048 or .050 in. wire in the vise and wind 10 or 12 turns of .010 in. controlline wire around it. While the spring is still on its wire mandrel, stretch it out; then compress it again. This will expand the diameter of the spring a bit and will give the proper spacing to the spring

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☐ WHIRLING WINGS: Helicopter. Aug. '55
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☐ TRIPLE THREAT: 1/2-A FF. June '55
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☐ HEATH PARASOL: FF, RC, .075-.09 Feb. '55
GUARDIAN: .29 Carrier winner. Feb. '55
SHARPIE: FF sport, .02-.049. Feb. '55

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coils. Now cut off a ¼ in. length of this spring. The spring shown in the photographs has seven turns of wire and an outside diameter of .088 in. Don't try to duplicate absolutely this outside diameter; just make certain it is free inside the ⅛ in. OD tubing so that it cannot bind.

9. Slide the spring on the plunger rod and insert this into the cut-off body from the needle valve end. Holding the plunger rod with a pair of needle nosed pliers, pull the plunger back all the way so that it clears the fuel tube hole and bend the rod at a right angle so that when it rests on the very end of the cut-off body it keeps the plunger clear of the hole. Cut off the wire and bend a small "eye" about ¼ to ⅜ in. from the right angle bend.

10. Tightly wrap the completed cut-off in Reynolds Wrap except for the end which will be soldered to the needle valve body. Clamp it in a vise. The Reynolds Wrap will conduct away the excess heat and prevent the other solder joints from melting and fusing the mechanism. Carefully "tin" the end of the needle valve body where it will be soldered to the cut-off body. Keeping this solder molten with the iron, insert the needle valve body and sweat it on. Make absolutely certain at this point that the spray hole in the needle valve body will be in the correct position when the assembly is replaced in the engine with the fuel line tube at the desired angle.

11. Press the needle valve body back in the engine, using a vise and tube as shown in the picture.

12. Mount the engine in your model and install your timer in such a way that a pull-wire will rotate the plunger rod into the slot and actuate the cut-off. To operate, pull out timer and set cut-off by pulling it out and twisting so rod will rest on end of cut-off body.

Note: Acid-core solder was used throughout. Wash cut-off thoroughly in *hot* running water after Step 7 and again after Step 10 to remove *all* traces of acid.

Soup Up That Pre-Fab!

(*Continued from page* 16)

to the front of each blade as a stop for the hinge. It was cemented to the front of the sections that fold back. Prop blades should be sanded to 1/32 in. thickness, huskier around the hub.

3A. *Light Nose Button:* Replace the hard-wood nose button with one made of sheet wood and add 1/32 or 1/16 in. sheet at the top of button to give downthrust as required.

4. *Add Ribs to Wing:* To keep the wing camber in shape, Bowers added five ribs of 1/16 in. sheet wood cut indoor style and evenly spaced them along each panel about 1-1/2 in. apart. He braced each rib with a piece of silk thread cemented at the leading and trailing edges chord-wise.

5. *Cement Wire to Control Surfaces:* Short strips of fine copper wire were cemented to rudder, elevators and aileron surfaces to hold the thin wood in the position desired for flight adjustments and trimming. Modeling clay was used on the underside of the nose for proper balancing.

6. *Increase Dihedral of Wing:* Bowers increased the dihedral to 1-1/2 in. under each wing tip by raising the struts 1/2 in. where they join the fuselage.

7. *Motive Power:* One loop (two strands) of 1/16 in. flat rubber, twice the length between prop hook and rear peg, or about 16 in., was wound 1,400 turns for Bowers' record flight. He used a mechanical winder and stretched the rubber out the front, through the hold in the nose bulkhead, where the nose button fits. Stretch it about three times the normal length. Have an assistant hold the plane with his left hand across the nose, the rubber between his fingers, and his right hand gripping the hard-wood stick

(*Continued on page* 52)

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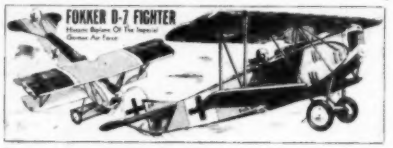

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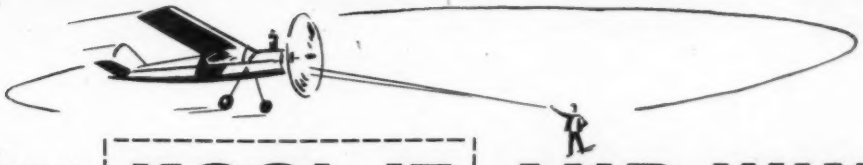

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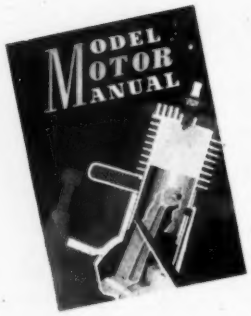

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which anchors the rubber in the rear of the fuselage. (Remember that a mechanical winder will turn the rubber five or more times each turn of the handle. Always count the turns.) Fuselage sides in front of the hard-wood peg holding the rubber were reinforced by cementing a strip of sheet wood in front of the hold on either side. More heavily built pre-fabs will need more rubber. An unlightened job requires up to two loops (four strands) of 1/8 in. flat rubber. An average job will take two loops (four strands) of 3/32 in. flat. If your plane lands with many turns still unwound in the rubber, add another light loop. Try varying sizes.

8. *Flight Adjustments:* Bowers' plane weighed .2 (two-tenths) oz. ready to fly. Normal weight is 1 to 2 oz. when no weight-saving improvements are made. He adjusted it to fly with the torque in a circle of 40 to 50 ft. in diameter. It climbed slowly to 50 ft. altitude, cruised there for most of the flight, rubber turns still unwound. To make wind-up easier, Bowers used a prop shaft that turned free of the prop until set in place against a fixed hook on the hub for the flight.

If you'd like to stage a novel air meet in your own club room, try "Flying The Ocean" with your souped-up pre-fabs. Place two strips of masking tape across the floor, parallel and 6 ft. apart. The ocean is between them. The object is to fly the heaviest load of quarters or half-dollars across the ocean. Models must take off and fly until they have safely cleared the opposite "shore." Winner is the flier whose plane transports the biggest load. One quarter and one half-dollar together are about maximum. END

Feno

(*Continued from page* 14)

CF (Combat Feno) being noted where applicable.

The only differences between the SF and CF versions are the nose moment arm, wing area and flaps (with the CF having the short wing and fixed flaps). Note that the fixed flaps on the CF model are cemented in one piece to the TE. The wing on the CF can be made with full length 36 in. stock, but the SF has to be spliced, this being done by splicing the spars, TE, LE at one tip and splicing the sheeted LE in the center. See the plan for the different thicknesses of the stabs for the two versions.

When selecting your balsa, choose medium hard for the LE, TE, spars, fuselage sides and bottom planking. All other parts (including ribs) should be medium soft grade. The tanks on the original models are modified Froom 21-B cross-feed type, which are vented through the nose bottom as indicated on the plans. The vents should run to the top of the tank and be cut at a slight angle. With the engine in operation, one vent should be sealed off.

Finally, here are a few hints on the construction of the Feno CF, if you plan to fly it in combat. Glue gauze along the full length of the fuselage sides, then wrap the motor mounts with two layers of gauze. Before installing or covering the wing, glue gauze to the LE (along the full length of the wing) the planked center section and the TE (including the stationary flap).

After the fuselage has been completed, wrap the nose section with gauze. Also, on the stab, cut two slots span-wise (about 6 in. long) and inset two lengths of 3/32 in. dia. wire. So if your ship gets hit in the stab during combat, it may break up a bit, but the inset wire should enable you to complete the flight. Here's to lots of good flying with whichever Feno you decide to build—the SF or the CF version.

The Scorpion

(*Continued from page 21*)

damage.

The bellcrank which operates the elevator is mounted on the inner (left-hand) wing in the position shown on the plan. The next step, therefore, is to drill a 3/32 in. dia. hole through the wing and through the two ½ x ½ in. plywood reinforcement plates. The plates are then cemented to the top and bottom surfaces of the wing, the bolt passed through and tightened up. Use plenty of cement around the bolt and nut, but do not overtighten as this may crush the balsa.

The bellcrank itself is mounted on the wing, as shown, using the bushing, washer and the second nut. The bushing enables the nut to be tightened up against the first nut without causing binding of the bellcrank. The pushrod is made from a 10 in. length of 3/64 in. dia. steel wire. It is simply bent through a 90° angle (right angle), 5/16 in. from the end, where it enters the bellcrank and is inserted before the lower nut is fitted. This obviates any need of soldering since the pushrod's close proximity to the wing prevents it from coming adrift. The small clips seen on the bellcrank are Berkeley snap connectors. The use of these also eliminates any need of soldering.

The 3/64 in. steel wire line guide is now pressed into the left wing tip, using plenty of cement for reinforcement. Note the position of the line guide carefully as marked on the plan, as the slight rearward rake which its position gives to the lines helps to stabilize the model. Also to help stabilize the model (by balancing out the weight of the control-lines) a small lead weight may be fitted in the outer wing tip. This should weigh between ¼ and ½ oz. Cut a suitable slot in the underside of the outer wing tip and insert the weight with plenty of cement.

The wing may now be attached to the top section of the fuselage, having first temporarily removed the bellcrank. Pre-cement both balsa surfaces, then, when dry, apply a second layer of cement and pin together as shown. When this is dry, the pins may be removed and, after pre-cementing, the fuselage bottom section should be attached. When fitting these sections together, make sure that the fuselage halves are correctly located at right angles to the wing surface.

Now add the fin, making sure that it is placed vertically on the fuselage and, of course, first pre-cementing. Next add the dorsal fin, followed by the rudder. Note that the latter is offset.

The two 1/16 in. plywood nose plates can now be fitted. First, check to see that they fit properly, then cement in position, using plenty of cement. Press the surfaces together during drying. A pair of spring clips are useful here for clamping together.

The next thing to do is to make up the stabilizer and elevator assembly. First fit the elevator horn in position as shown. In the case of the Berkeley C-7 horn this is simply done by squeezing the horn over the elevator with a pair of pliers and applying plenty of cement around the joint. Next, cement the four ⅜ in. wide cloth or nylon strips on the top surface of the elevator and the four similar strips on the top surface of the stabilizer as shown on the plan. The two units are then turned over and brought together with the ends of the hinges brought through the gap. The strips attached to the elevator are then turned down and cemented to the lower surface of the stab, while those attached to the stab are cemented to the elevator.

Now slide the stab into its slot and refit the bellcrank with pushrod in position. With the bellcrank in neutral and the elevator level, mark the position of the elevator-horn pivot hole on the pushrod and bend the rod at right angles to pass through the hole. Now slacken off the bellcrank nut sufficiently to allow re-

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moval of the pushrod and remove the stab from the fuselage. Disconnect the pushrod from the horn and bend a second right angle about 3/16 in. from the first and re-insert through elevator horn.

The stabilizer may now be permanently cemented in its slot and the pushrod reconnected to the bellcrank. This arrangement cuts out any need of soldering retaining washers onto the pushrod and is completely safe. The bellcrank retaining nut can then be finally tightened up, holding a spanner around the first nut so that the bushing is locked securely. The wire tailskid is also added.

The next thing to do is to fit the landing gear. The gear is bent from 1/16 in dia. steel wire to the pattern shown on the plan. A pair of 1/16 in. dia. holes are drilled through the fuselage: one each side of the wire and thread binding, coated with cement, secures the struts to the fuselage. Engine mounting holes can also be drilled at the same time.

Wheels may be retained by washers soldered onto the axle ends or by wheel retainers obtainable from a hobby shop. Now check the fit of the motor and arrange the fuel line from tank to needle-valve. The Cub .075 is set up with the fuel tank rotated so that the filler and vent pipes just clear the fuselage on the left side. The plastic fuel tube, which must be a firm fit in the tank to prevent leakage, enters the tank slightly above the center line and passes beneath the tank securing screw to draw fuel from the lower right hand side of the tank. This works well since centrifugal force throws the fuel in this direction and insures that the engine draws fuel evenly. Although the Scorpion was designed for basic training and not for aerobatics, the model will loop easily on the Cub .075.

It now only remains to finish and paint the model. First go over the entire job with fine sandpaper, removing any roughness and rounding off the corners of the fuselage. Give the entire model a coat of clear dope and lightly rub down again. Apply an extra coat around the nose section. The model can now be color doped or, if you are disposed to spend a little extra effort, it may be given a coat of filler or two or three thin coats of gray primer to provide a smoother surface for the final coats of color. Two coats of colored dope should be sufficient.

Color scheme is to your choice, of course, but a bright color, such as yellow, silver or red, shows up best against a dark background when flying. The cockpit hood can be painted black or silver in the case of a red or yellow model. Final decorations can be added with decals. To prevent fuel from dissolving the finish, fuelproof dopes or a final coat of transparent fuelproofer should be used.

When refitting the engine, do not overtighten nuts. Use lock-nuts to prevent the bolts from loosening with vibration. Use a prop as recommended by the engine manufacturer.

For .049 models, a 25 ft. line length can be used. For .065 to .075 displacements, a 30 ft. length is preferable and this can be further increased to 35 ft. with .099 engines. Heavy line or wire should be avoided as these cause too much drag on a small model. A light fishing line or a good strong thread is very suitable. Attach the lines securely to the bellcrank clips after passing them through the wing tip guide. The other end of each line is attached to your controlline handle. The *front* line from the bellcrank should be attached to the *top* of the handle. Make sure that the top of the handle is easily identified to prevent accidental reversal of controls when picking it up.

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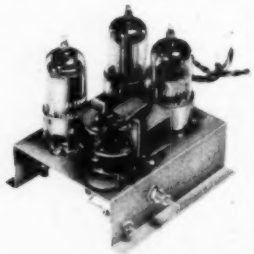

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Largest in the series is the never to be forgotten Fairchild. Stable, strong, detailed, it is ideal for contest experimentation.

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29" Wingspan

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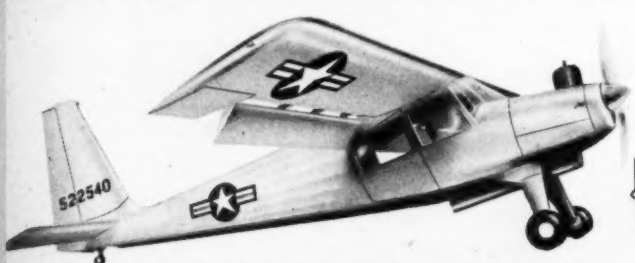
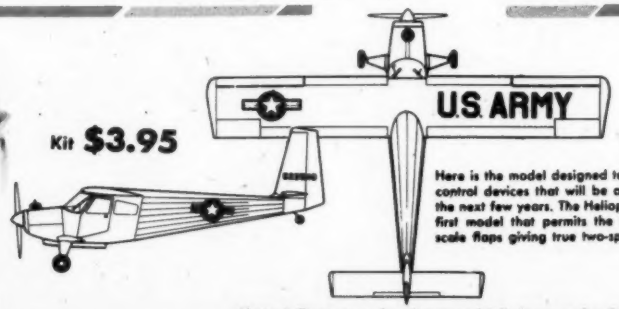


Kit $3.95



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Variable Camber Wing for Two-Speed Radio Control Flying!

38¾" Wingspan—1" Scale
For .049 to .14 Engines

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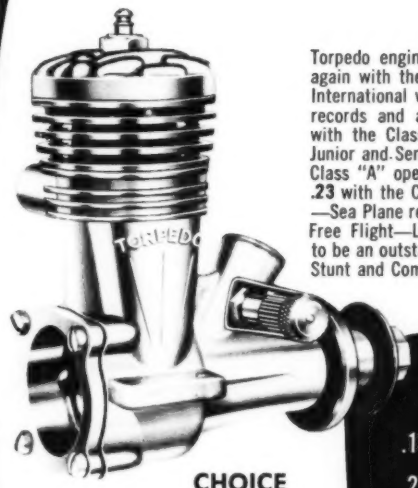

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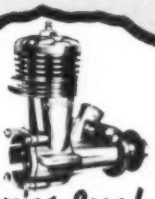

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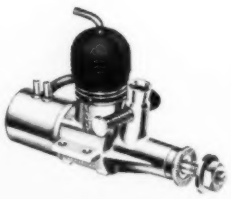
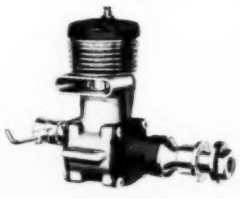
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